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THE PROTO AND EARLY HISTORICAL CULTURES

of Andhra Pradesh

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FOREWORD

Dr. V.V. Krishna Sastry is a digger. When applied to an archaeologist the term "Digger" or even "Grave Digger", is notably derogatory; on the contrary, it is an apt description of what he is and should be.

Only a great digger can be a great archaeologist. To unearth the buried past to unravel the tangled history, and to make the dead peoples and their cultures reveal for us, he has to use his spade extensively, and he has to use it with knowledge and skill, with zeal and imagination. In the process, he has to open up graves, uncover cists, scoop out temples, excavate forts together with their gates and moats, locate cave dwellings, discover village sites and other places of human habitation and do a hundred and one other things of a similar nature. And as he descends tier by tier deeper into the site he is digging, he should collect every object that turns up from the scrapers and blades, the stone axes and arrow-heads, the pot sherds, beads and terracottas of the most primitive man to the crown and sceptre, the throne and footstool of the mightiest emperor. Each thrust of his spade should indeed be a peep into the eras which have long ended, into ages which have utterly vanished. So to call himself a digger is and should be a matter of pride to an archaeologist. Small wonder, then, that one of the greatest archaeologists, SIR MORTIMER WHEELER entitled his autobiography "STILL DIGGING".

While every archaeologist is a digger, a few are by far more successful than the rest. Their distinction cannot be wholly attributed to their genius and zeal; there is also an element of luck. The life stories of almost all archaeologists of world stature show that luck did play a decisive part in their careers.

I have been closely following the work of Dr. Krishna Sastry during the past few years. Apart from his high talents and utter dedication to his work, I am able to discern in his case that elusive element of luck favouring him time and again. As the Director of Archaeology, Andhra Pradesh, he has, I believe, unearthed more history in the course of the past two or three years than what some of his predecessors did in as many decades.

The fact that Dr. Krishna Sastry is an excellent digger, and a lucky one at that, is amply borne out by his first major work "The

Proto and Early Historical Cultures of Andhra Pradesh". It digs much of new ground and brings to light many unknown or little known facts of the very early phases of the history and culture of Andhra Pradesh. Its range is very wide in time, for it covers the millennia which span the early and middle stone ages and the age of iron and the culture as it is associated with the Satavahanas. By its very nature, it is not an easy book to read. But if one persists, one will learn much from it, as I did. Together with wise and critical utilization of the findings of past diggers, Indian and Foreign, its author makes good use of the first hand knowledge which he gained by his own field work in the region. His book has both breadth and depth. It is clear in its perceptions and sober in its conclusions.

What struck me most in reading Dr. Krishna Sastry's book is the vital role which the Karimnagar District and its environs, comprising the Nizamabad, Adilabad and Warangal Districts, played in the very early history of not only Andhra Pradesh, but of India as a whole. Given a chance, the same area with its rich mineral and other resources can and will play no less a vital role in shaping the future of our state and our nation.

The best tribute I can pay to Dr. Krishna Sastry's book is to state that, despite my near inability to travel, it has kindled in my aged and tired heart a keen desire to see at least some of the places where the early man in Andhra Pradesh made his scrapers and blades, fashioned his stone axes and arrow-heads, prepared little patches of land for cultivation, built his houses of reed and mud, in a word, where he fought, with his brawny arms and stout heart against rank nature and its blind forces to march step by step along the road to civilization. In case I manage to make the trip, Dr. Krishna Sastry's book will be at once my map, guide and teacher.



(V. R. Narla)

"Lumbini,
Banjara Hills,
Hyderabad."

PREFACE

It gives me great pleasure to preface this book by Dr. Krishna Sastry. In the first place, the book is welcome because we hardly have any work worth the name in the country on regional archaeology. Secondly, the work is penned by no less person than one who has been at the helm of archaeological matters in Andhra Pradesh, and who has been very active in the field. What we have, therefore, is an authoritative work by a field archaeologist, who has a first-hand knowledge of the evidence. The book is therefore doubly welcome.

European countries have had a long tradition of regional archaeology. The late Sir Mortimer Wheeler had long back underlined the need to introduce regional approach in Indian archaeology and he had then referred to the excellent work done in Britain. But his advice probably fell on deaf ears and nothing was done here. Of late, however, a couple of works in regional art and archaeology have been published, but they deal more with art than with archaeology. The regional archaeology is thus, for the first time, receiving due attention, and that too in Andhra Pradesh, a state which is one of the richest so far as the archaeological potential is considered. Let me, therefore, congratulate Dr. Krishna Sastry for producing this work on the archaeology of Andhra Pradesh, more particularly of the Karimnagar region which is located on the north, on the borders of Maharashtra.

Although most of the states in the country have their own departments of archaeology, only a few are carrying out field research. In this respect, Andhra Pradesh, which comprises mostly the erstwhile state of Hyderabad, has a long tradition on archaeological research pioneered by the late Dr. Ghulam Yazdani. And it is heartening to see that the same tradition is now being maintained by Dr. Krishna Sastry, who has carried out intensive explorations and has also conducted some interesting excavations in the state.

In this book Dr. Krishna Sastry, after discussing the natural setting and the palaeolithic cultures, describes the life style of the first farmers of Andhra Pradesh. The region is singularly rich in neolithic habitation sites of which there are two groups *viz.*, the hill sites and the surface sites. The first settlers located their habitations on the top of the granitoid hills. Besides these, there is the problem of the Ash Mounds which also belong to the neolithic period. The discovery of a neolithic pottery kiln at Polakonda is the only one

of its kind and similarly the existence of iron-smelting farmers at Telkunta is very significant. What is more, even rock paintings of the Megalith builders have been discovered.

Almost the entire state of Andhra Pradesh was dotted with early historical settlements some of which, on the basis of the total habitational area, can be identified as urban centres. More important among these are Dhulikatta and Kotilingala which were fortified, thus testifying to the evidence of classical writers. In the Karimnagar and Warangal districts, the author tells us, every other village has an early historical site. This habitational growth can be attributed to the enormous increase in agricultural produce which was made possible by the ushering in of a full-fledged iron technology without which the effective cultivation of the hard compact black-cotton soil could not have been possible. The economic prosperity, coupled with political peace, a gift of the rulers of the Satavahana dynasty, gave a fillip to commerce as well. Very soon, in the opening centuries of the Christian era, the Deccan enjoyed a flourishing trade with the Roman empire which was favourable to us and, as a result, the Roman gold began to flow into the Deccan. This contact with the classical world is very well documented in the archaeological record in the form of artifacts of Roman origin such as gold coins, Roman lamps, and the portrayal of foreigners in the Satavahana and the Ikshvaku art. The prosperity brought in by this trade is reflected in the rich life style of the people during the early historic period. It is this aristocratic life which is depicted in the reliefs of Amaravati and Nagarjunakonda. The Andhras were then vying with each other in becoming the true *nagarakas* of Vatsyayana.

Thus we have a significant contribution on regional archaeology, which is yet a desideratum in the country. Dr. Krishna Sastry has given us, in great detail, the results of his work and that too quite promptly. He has fortunately not been lured into drawing far reaching conclusions and it is left to the reader to form his own opinion. It is hoped that this work will set in motion the process of producing works in regional archaeology, for although archaeological activity is rampant in the country, prompt publication is rare.

April 30, 1982.

M. K. DHAVALIKAR
Professor of Archaeology
and

Joint Director,
Deccan College Postgraduate Research Institute,
Pune - 6.

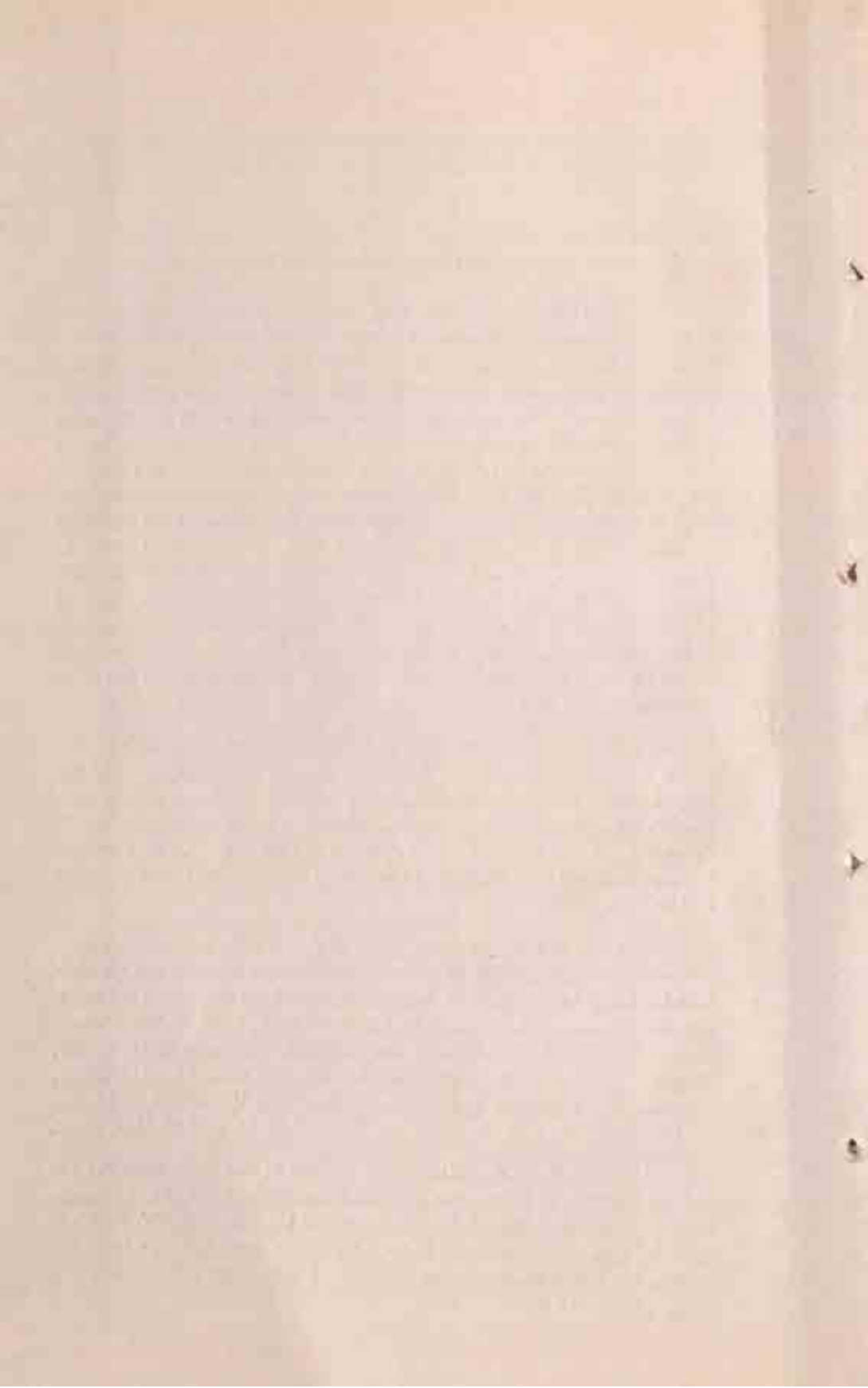
ACKNOWLEDGEMENTS

In the task of exploring prehistoric sites the author received invaluable help from Thakur Rajaram Singh, a lawyer by profession and an archaeologist by avocation. Dr. N. Ramesan the former Director, and Sri P. Sitapati Former commissioner of Archaeology and Museums have greatly encouraged him in bringing out this book. The author also received help from his colleagues in the Department namely Sri G. Krishnam Raju, Smt. Noorjahan Begum, Sri Mohd. Shareef, Sri Md. Habeebuddin, Sri Shaik Hussain, Sri Y. Shambhusinghi. Sri V. Yellaiah and Sri Sainath have supplied excellent photographs. Sri S. Narayan Rao gave unstinted help in classification and selection of antiquities. Mrs. Varalakshmi provided library facilities. Sri Yadagiri who has now joined the Revenue Department, typed the manuscript. Sri P. Satyanarayana, Asst. Curator, of the State Museum, Hyderabad had very patiently typed the final copies of the book. Sri Syed Habeebuddin, Stenographer, typed some chapters as also the Index.

Sri P. S. Johnstone has very diligently corrected the proofs besides giving invaluable suggestions wherever necessary. Miss G. Lalitha, Asst. Director (Publications) has been instrumental in expediting this publication. Sri V. Gangadharam, formerly Foreman, Sri R. V. Appa Rao, Foreman and Sri T. Raghu Rama Rao, Chief Foreman have given good co-operation in bringing out the publication neatly and in time.

Grateful Pranams of the author are due to Dr. B. K. Gururaja Rao, Reader, Manasagangothri, Mysore who directed the author to undertake the study in a systematic way and provided his invaluable guidance. The author owes his gratitude to Dr. S. H. Ritti, Head of the Department of Ancient Indian History and Epigraphy, Karnataka University, Dharwar and to the authorities of the Karnataka University, Dharwar for accepting this thesis for awarding the degree of Doctor of Philosophy as also for according permission to publish the same.

Dr. M. K. Dhavalikar in his preface to this book reviewed the subject matter and offered his invaluable suggestions for future researchers. Reverential thanks for the Foreword are due to Sri V. R. Narla garu, a doyen of journalists of India, a scholar of great repute, a freedom-fighter, an astute Parliamentarian, a noted playwright, an essayist, a biographer and a poet.



THE BACKGROUND

This book embodies the labours of the author for probing into the various socio-cultural aspects of Andhra Pradesh from the times of the early farming communities down to the end of the Satavahana epoch. While primarily dealing with the proto and early history of Andhra Pradesh, an attempt has been made to provide some glimpses of the prehistoric background without which, it is felt, the story of the progress of man will be incomplete. Archaeologically the State of Andhra Pradesh, till recently, was a *terra incognita* until a beginning was made during the last century by Col. Mackenzie who discovered several ash-mounds in the north Karnataka. Subsequently, in 1842 Captain Meadows Taylor picked up the first Neolithic stone axe of the earliest farming community near Raichur. Robert Bruce Foote had thrown a flood of light over the Mesolithic, Neolithic and Megalithic cultures of South India. Leonard Munn started his investigation in 1925. The work was continued by Gulam Yazdani the former Director of the Department of Archaeology, Wakefield and several others.

The prehistory is known only through the tool kit of the earliest man. We know nothing about his daily life, housing pattern and so many other things. In India, a very large collection of prehistoric tools are found only on the surface. No other associated finds have so far been recorded. Accordingly some highlights of the work done in field of prehistory by himself and others have been described.

In the case of the early farming communities, the author mainly concentrated upon his own excavation at Polakonda in Warangal District, besides presenting a picture of the surface finds from various other places collected by himself and others. Comparatively, the problem of Megalithic culture is a little more clear. The author mainly dwelt upon the results of his excavations at Kadambapur and many other places besides a large number of explored sites. Some of the excavated sites mentioned in the book such as Pochampadu, Agiripalli, Tenneru, Jonnawada, Peddamarur, Uppalapadu, Chagatur have been included with a view that the reader may compare the results between each site. Secondly, to focus the results of the unreported excavations conducted by himself and his colleagues under the aegis of the Department of Archaeology and Museums.

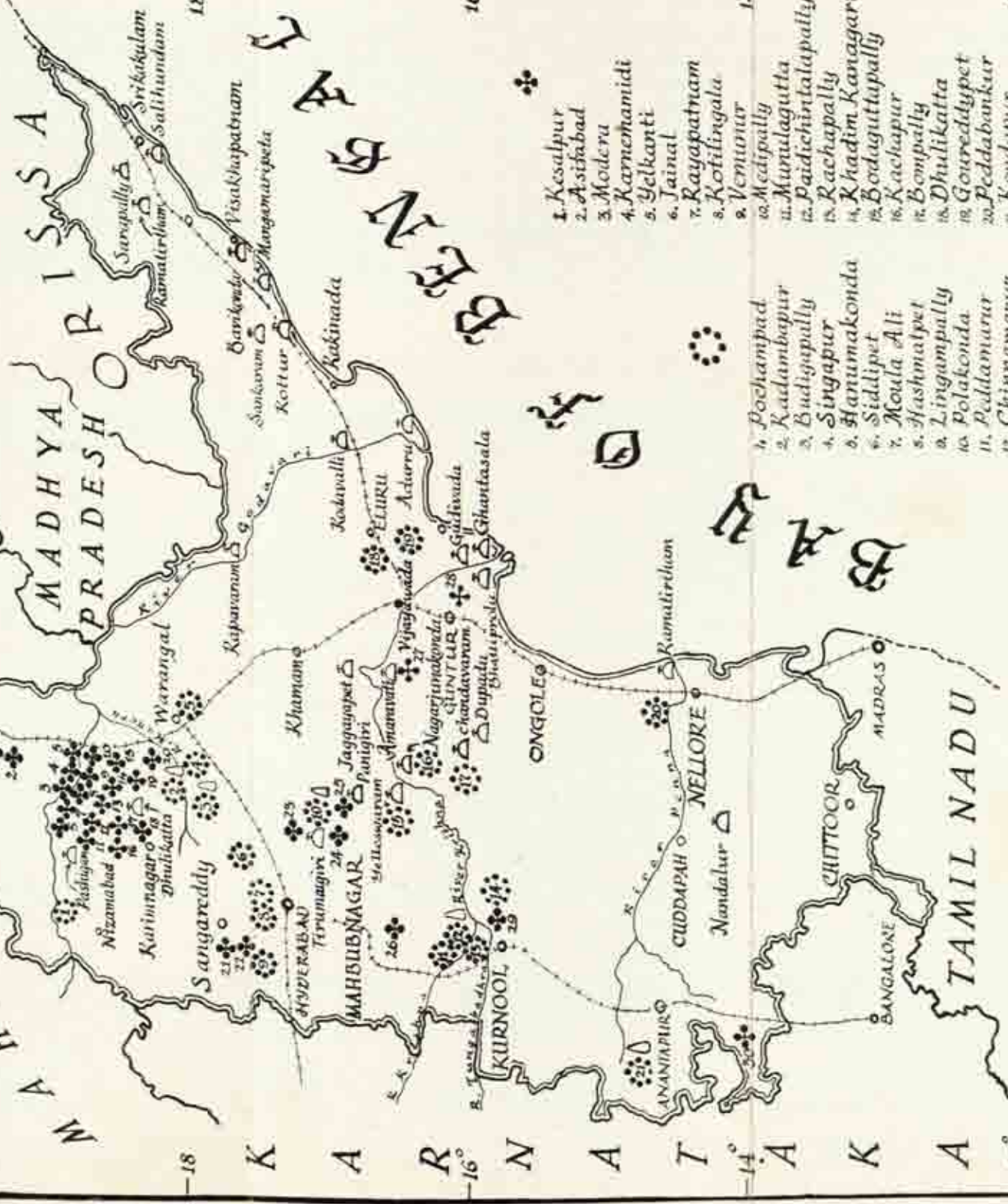
During the years 1968-74 the Department of Archaeology and Museums of the State of Andhra Pradesh conducted large scale excava-

tions at Peddabankur, under the supervision of the author. Later, another important early historical site near Dhulikatta was excavated. In the course of above excavations, the author availed the opportunity of his prolonged camp life to extensively explore the Kareemnagar region, which resulted in the discovery of several proto and early historical sites. The bewildering mass of cultural relics noticed gave impetus to the author to undertake a systematic study. In the course of his forays the author chanced upon early historical sites almost at every alternate village in Kareemnagar and Warangal Districts. It would be cumbersome and unnecessary even to mention briefly the nature of each site discovered, leave alone presenting the various cultural aspects. Therefore, the author had to restrict himself upon his own excavations particularly at Peddabankur and Dhulikatta which themselves have presented sufficiently a broad spectrum of the socio-economic and cultural aspects of the region.

MAP SHOWING

PROTO AND EARLY HISTORICAL SITES

of Andhra Pradesh



Reference :

- △ Neolithic
- ✕ Megalithic
- Buddhist Stupa
- District HQ
- Railway line

Scale 1 cm. = 18 km.



Drawn by M. Sharief & Hussain

1. Kesalpur
2. Asifabad
3. Modera
4. Kamehamidi
5. Yelkanti
6. Jainal
7. Rayapatnam
8. Kotilingala
9. Vemur
10. Medipally
11. Murugutla
12. Paidichintalapally
13. Rachapally
14. Khadim Kanagarti
15. Bodaguttapally
16. Kachapur
17. Bompally
18. Dhulikatta
19. Goureditypet
20. Peddabankur
21. Kondapur
22. Kandi
23. Devayyapala
24. Vardhamanakota
25. Gajula Banda
26. Vaddemari
27. Anaravati
28. Mallepada
29. Satanikota
30. Sasanakota
1. Pochampad
2. Kadambapur
3. Budigipally
4. Singapur
5. Hanumakonda
6. Siddipet
7. Moulali Ali
8. Hashmatpet
9. Lingampally
10. Polakonda
11. Peddamarur
12. Chinnamur
13. Uppalapadu
14. Satanikota
15. Veliswaram
16. Nagarjunakonda
17. Chundavaram
18. Lemeru
19. Agiripally
20. Jonnayada
21. Hulukal



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ABBREVIATIONS

AI	Ancient India - Bulletin of the Archaeological Survey of India
AP	Ancient Pakistan
APGAS	Andhra Pradesh Government Archaeological Series
APIA	The Andhra Pradesh Journal of Archaeology
ARADN	Annual Report of the Archaeological Department of H.E.H. the Nizam's Dominions
ARASI	Annual Report of the Archaeological Survey of India
ARASMC	Annual Report of the Archaeological Department, Southern Circle, Madras and Coorg
ARDA & MAP	Annual Report of the Department of Archaeology and Museums, Andhra Pradesh
BDCRI	Bulletin of the Deccan College Research Institute
CS	Current Science
IA	Indian Antiquary
IAR	Indian Archaeology, A Review
ILN	Illustrated London News
IPPA	Foote Collection of Indian Prehistoric and Proto-historic Antiquities
JASB	Journal of the Asiatic Society of Bengal
JBORS	Journal of Bihar and Orissa Research Society
JHGS	Journal of the Hyderabad Geological Survey
JPSI	Journal of the Palaeontological Society of India, Lucknow
JRAI	Journal of the Royal Anthropological Institute of Great Britain & Ireland
JRAS	Journal of the Royal Asiatic Society

KSB	Kausambi
MASI	Memoirs of the Archaeological Survey of India
PAPS	Proceedings of the American Philosophical Society, Philadelphia
PASB	Proceedings of the Asiatic Society of Bengal
QJMS	Quarterly Journal of the Mythic Society
RASI	Report of the Archaeological Survey of India
WA	World Archaeology

PART I

CHAPTER I .. The Physiography

CHAPTER II .. The Prehistory

1897



CHAPTER I

THE PHYSIOGRAPHY

The Karimnagar region, selected for an intensive archaeological study, comprises, besides the Karimnagar District, the contiguous districts of Nizamabad, Adilabad and Warangal. This triangular segment forms the northern most part of Andhra Pradesh. The mighty river Godavari, originating in the Western Ghats, divides the districts of Nizamabad and Karimnagar to the south and Adilabad to the north. The region, lying in between Lat. 18.00° and 19.45° and Long. 77.32° and 80.30° , is surrounded by Bidar, Nanded, Rajura, Chandrapur districts of Maharashtra and Bastar district of Madhya Pradesh.

Rivers

River Godavari, the largest in Peninsular India, rises in the Western Ghats at Triambak near Nasik in Maharashtra state and enters Andhra Pradesh near Basar in the Adilabad district. It flows for about 283 km. and separates the Chanda district of Maharashtra and the Bastar district of Madhya Pradesh from this region.

The river Maner¹, a tributary to the Godavari, originating near the village Kalkur, traverses through the Karimnagar district from the west to the east and as far as Kurlagunta in Mantheni taluk, then flows towards the north and falls into the Godavari in Mantheni taluk. It stretches to a length of about 130 km. in the Karimnagar district and forms an important source of irrigation. Peddavagu and Chinnavagu are the other minor rivers in the Karimnagar District.

The other important river in the Nizamabad district the Manjira chief tributary to the Godavari, rising in Patoda taluk of Bir District in Maharashtra, crosses the district from the south-west and joins the Godavari near Kandukurti in the Bodhan taluk, after a course of 100 kilometres. The waters of this river are well utilised for irrigation after the construction of a dam, known as Nizamsagar, near Achampet in the Banswada taluk of Nizamabad.

Moyatummeda, a tributary to Maner, Peddavagu and Chinnavagu are the other rivulets, which sustained ancient cultures in this region from times immemorial.

1. The Andhra Pradesh District Gazetteer, Karimnagar, 1974, p.3

Geology²

The Karimnagar region forms part of the Indian Peninsular shield, which remained a stable land-mass since the formation of the earth-crust. The earliest rocks, known as Archaeans, are mostly igneous and highly metamorphosed. The area was later exposed to weathering, after which molten lava, erupting from the fissures, flowed in the west coast and spread over the western and as well the central parts of the Peninsula. The solidified lava flows are known as the traps. For the last 50 million years there was no significant change in the geological history of the region.

The Archaeans

A major part of the region is occupied by the Archaean group of rocks, such as the Peninsular granite complex, banded ferruginous quartzites, dykes of dolerite and lastly veins of pegmatite and quartz. The Peninsular granite comprises the pink and grey varieties, the colour of which depends upon the feldspars contained in them. The granites are essentially composed of quartz, potash, feldspar (pink or grey), mica and hornblende minerals.

Numerous dykes of dolerite and veins of pegmatite and quartz traverse through the granites in different directions. The hornblende granitic gneiss of this region weathers in a remarkable manner. Enormous rounded and smoothed boulders stand one over the other and sometimes in groups. The banded ferruginous quartzites and schists, generally known as the Dharwars, are well displayed as outlying bands in the further east of Karimnagar and Warangal districts. They consist of hornblendes, talc, chlorite and mica, schists, quartzites and ferruginous-quartzites.

The Deccan Traps

The Deccan Traps consist of massive or vascular flows of basalt, which have given rise to flat-topped hills with plateau-like appearance.

The granite complex is marked by igneous sedimentary groups. The igneous metamorphosed rocks occur as sills and dykes.

The minerals in the basalt are feldspars and pyroxenes which occur roughly in equal amounts. The intertrappean beds consist of marls, sandstones and cherts, which are sometimes fossiliferous.

2. Munn L., 1915, *Geology of H.E.H. The Nizam's Dominions*, pp. 31-32.

MINERAL RESOURCES

Iron Ore

There are many occurrences of magnetitic quartz rock in the Jagtyal taluk of Karimnagar district.³ Minor deposits also occur in the Karimnagar, Peddapalli and Manthani taluks. In the Armur taluk of Nizamabad district ferruginous quartzites and schists are noticed at many places. Ancient mining activity for iron is noticed at several places in the Armur taluk of Nizamabad district, the Peddapalli and Jagtyal taluks in Karimnagar district, the Jangoan taluk in Warangal district and Siddipet in the Medak district.

It was perhaps the ores of Karimnagar and Nizamabad regions, which were supplied to the ancient iron smelter at Konasamudram, wherefrom iron for the Damascus steel is said to have been exported. During their voyages this region was visited by the earlier Roman and Persian traders for the steel, as this Indian 'Wootz' was well-known throughout the Ancient East.

Soap-stone

Small workable pockets of soap-stone occur at Turakala Maddikunta at about 10 km. from Peddabankur and Paltham and Metpalli areas of the Jagtyal taluk. Limestone is abundant at Basantnagar near Ramagundam.

Rainfall

The average rainfall in the region is 1035 millimetres (40.70"). The rainfall increases from the east towards the west and the south-west monsoon constitutes about 86 per cent of the annual rainfall. July is the rainiest month.

Temperature

Rapid rise in temperature is noticed from February, while May is the hottest month with mean daily maximum temperature of 41.4° C. (106.5° F.) and the mean daily minimum of 27.5° C. The intense heat during the summer is very trying and the day temperature rises up to 46° C. (114.8° F.). Among the hilly regions of Manthani and Laxettipet the temperature is much higher and the valleys appear like hot pans.

Forests

The forests in the region can be classified into 2 types viz., (1) southern tropical mixed deciduous and (2) southern dry teak type.

3. The Andhra Pradesh District Gazetteer, Nizamabad, 1973, p.8.

Several other types like Babul forest, Hard Wickia forest, Dry Deciduous Scrub forest, and Secondary Dry Deciduous forest are also found scattered in this region.

The Mahadevpuram forest area, noticed all along the bank of river Godavari can easily be classed as the best for the quality of trees obtaining with a dominant height of 18 to 24 m. and a girth measure of 1.5 m. The most important and the best teak (*tectonagrandis*) producing areas of the state of Andhra Pradesh fall in Karimnagar region.

Fauna

The fauna of Karimnagar region is both rich and varied. A large variety of wild life is found in the forests of this region. The ecological distribution is not only uniform but also very much variant and consistent with the quality and density of the forest. The game animals, such as deer and other horned varieties, are noticed in the Manthani area. Some of the species, such as the black buck, four-horned antelope, tiger and panther, were abundant in the past, but their number is alarmingly decreasing in the recent years, causing consternation among the ecologists and naturalists. The black buck and the great Indian bison were very abundant in the past, while the neelgai or blue bull, spotted deer, porcupine, rabbit, hare, chital, wild sheep, sambar are quite common now. Among the carnivora, the tiger and panther are noticed in the Tadicherla, Mahadevpur and Singaram blocks.

Game Birds

Among the important game birds in the region, mention may be made of the green pigeon, peacock, puzfowl, water duck, partridges, sand-goose, wood-duck, snipe, red jungle fowl, kingfisher, bulbul, dove, crow, myna, oriole, parakeet, woodpecker and the common pigeon. In winter season many birds of migration from North India and Himalayan regions visit this area.

CHAPTER II

THE PREHISTORY

The pattern of wet and dry periods for a considerable part of India was suggested by Burkitt⁴ and later confirmed by Zeuner.⁵ It was noticed, by the study of stone implements, that the climatic changes that have taken place in south India are, to a large extent, linked up with the origin of the laterite, the peculiar subaerial alteration product and a widely occurring geological formation. The earliest relics of prehistoric man, in the shape of stone implements of Palaeolithic type, are found embedded, in large numbers, in the low lying laterites. The formation of laterite,⁶ a decayed clayey mass, consisting largely of hydrated silicate of alumina and iron, can only take place where there is considerable rainfall. In fact, it is only in tropical areas, and that too in the areas of very heavy rainfall, the laterite was formed. It would appear that the water logging of the soil is an important condition for its formation. It is likely that there might have been an alternation of distinct wet and dry seasons in south India. The presence of extensive deposits of laterite may indicate that the pluvial or wet period must have been very protracted.

After the formation of the laterite a dry spell seems to have set in, causing the breaking up and weathering of upper part of the laterite previously formed. It is in this or underneath decayed laterite, either in situ or washed down and re-deposited, the implements of the Early Stone Age (Lower Palaeolithic) occur. During the dry period the surroundings have become more congenial and the earliest inhabitants lived on the laterite.

Again during the period of torrential rains the relics of ancient man were swept partly into the river gravels and partly into shallow detrital beds. When a second dry period followed, areas which were deserted earlier were repopulated. Finally, a wet phase deposited an alluvium, which covered the remains of the inhabitants of the preceding dry phase. During this and succeeding periods, in which rainfall decreased to the present day quantities more advanced stone industries made their appearance. In general it can be said that during dry periods

4. Cammiae L.A., & Burkitt M.C., 1930, *Antiquity*, No. IV, pp. 328-330.

5. Zeuner F.E., 1950, *Stone Age and Pleistocene Chronology in Gujarat*, p. 42

6. Wadia D.N., 1919, *Geology of India*, pp. 376-380.

aggradation or a general rise took place, and during wet ones weathering of surface or down-cutting of the rivers, flowing with greater force through a narrower channel, occurred.

The above phenomena are clearly noticeable along the right bank of river Krishna to the east of Bhimavaram village in the Alampur taluk of Mahaboobnagar District. The riverine shingle, mostly of quartzite, deposited during a wet period, is found at as high a contour as 244 m. M.S.L. The ancient deposit is more than 30 m. higher than the present river bed and 2 km. away from it. It can be inferred that during the Pleistocene the bed of the river was more than 3 to 4 km. wide. The quartzite shingle over the terraced and now abandoned flood plain was made use of by the earliest inhabitants for making their tool kits.

The section at Bhavanasi⁷, a tributary to river Krishna in Kurnool district, near a small village, Krishnapuram on the Nandikotkur-Atmakur road, gives an almost complete picture. There appears to have been an initial period of laterite formation, under the conditions of considerable humidity, which denotes the first wet period. During the succeeding dry period Palaeolithic Man of the Middle Pleistocene lived on the dried up laterite plain. Then there appears to have been a period of torrential rains, during which artifacts, showing signs of laterite staining, were washed down and redeposited in a pebble bed. As the downpour became less violent, but considerable yet, a red clay was deposited. We therefore get a double cycle of the wet followed by the dry and wet phases consecutively.

AMARABAD (Mahboobnagar District)

The Early Stone Age site lies on the sloping mounds at the foot of the hill range to the west of the village. The range, with no specific name but known only by some approach paths, runs to a length of 6 to 8 km. in the east-west direction and takes a southward turn near the main road from Mannanur to Srisaïlam. The road from Mannanur to Amarabad, which is almost perpendicular to the above main road, runs exactly parallel to the above said range.

The above hill range, which is 749 metres high, is covered with thick jungle and scattered with quartzite pebbles. The flat surface over the top of the hills is covered with red soil. There is a small lake of about 100 sq. m. which is found always filled with water.

A few nullahs, originated at the foot of the hill, merged into a single stream known as the Kathavagu at the lower reaches, which is a tributary to the Mandavagu.

7. Cammiade L.A., & Burkill M.C., Richards F. J., 1932, Climatic Changes in South-east India during the Early Palaeolithic Times, *Geological Magazine*, Vol. LXIX.

The sloping mounds, at the foot of the hill, were eroded at several places by the nullahs, which, at a few places, are as deep as 2 to 8 m. There are very few spots where a complete stratigraphical sequence could be obtained.

The section noticed above the nullah bed is basalt disintegrated and weathered granitic rock, upon which a deposit of quartzite pebbly bed, associated with Acheulian hand-axes, cleavers, choppers, and flakes is found. The pebbly deposit was overlain by a well-cemented weathered laterite of pale brownish colour and of granular composition. This was covered by red alluvial clay, of a thickness of about 40 to 80 cm., which was carried down from the hills and deposited.

Most of the tools were found slightly below the pebble deposit. At a few places both the raw material and the implements were mixed-up. As the nullahs have cut the deposit deep at many places, the tools, mixed-up with pebbles, were found over the beds of the nullahs. In fact most of the best specimens collected are those found over the beds.

During the examination of deeper sections, at the lower reaches of the Kathavagu, it is found that the weathered and cemented laterite deposits are very thin, and the overlain red silt is more than a metre thick.

Typologically the tools (*Plate I*) found here belong to the early and late Acheulian Stages. The collection (of about 120 tools and flakes) includes excellent specimens of hand-axes, cleavers, chopping tools, scrapers, points and flakes, etc. The cleavers constitute more than 50 per cent of the total collection while the hand axes form only 18 per cent, and small axes of biconvex points and scrapers account for 3 per cent only. The rest are flakes or worked flakes. These points, scrapers and flakes are of the Acheulian industry.

In view of the finding of raw material, *i.e.* quartzite pebbles and flakes, and finished tools at the site, and the natural agencies abounding, it must be an undisturbed factory site of the Lower Palaeolithic period, and must have been inhabited by the Palaeolithic man for a considerably long period. The surface exploration, no doubt, revealed almost a complete sequence of typology, but other associated finds, such as fossils or chopping tools, etc., may possibly be gleaned only through excavation.

NADIMIPALLI

The road from Mannanur to Achampet, after descending from the Nallamalai range to the plains, runs parallel to the hills and crosses several nullahs of which the Chandravagu appears to be the oldest and the widest. It is a tributary to river Dindi, across which a minor irrigation project was recently constructed.

The Chandravagu had changed its course several times in the past. The area around the present road was once the bed of the rivulet. During the periods of aggradation, heaps of sand, silt and rubble have been deposited, while during denudation the river changed its course, cutting the softer bed deeper and deeper. Thus the previous bed of the river, which was about 8 to 9 m. higher than the present one, served the Early Palaeolithic Man eminently in the supply of raw material for the manufacture of his implements.

Exploration at the place, where the road crosses Chandravagu at about 5 km. from Achampet, revealed hundreds of pebble choppers, a few cleavers, and protohand-axes. All these tools were worked out of the riverine pebble. The industry is definitely more primitive than the one noticed near Amarabad and technologically may be termed as true Abbevillian with a little mix-up of Early Acheulian. Thus both the industries, noticed at Amarabad and Nadimipalli put together, will give a continuous sequence from Abbevillian to Late Acheulian. In most of the Palaeolithic sites noticed in South India, pebble choppers and protohand-axes are found along with Acheulian tools. Here we are noticing a clear-cut distinction between the Early and Late Industries.

At Giddalur⁸ river Sagileru meanders and strikes the opposite bank. The section noticed above the water level is basal weathered rock, upon which is found a deposit of cemented gravel, overlain by a layer of river silt which itself is capped by a loose pebbly deposition of a comparatively much later horizon. Among the tools noticed at Giddalur, the earlier types such as the Abbevillero-Acheulian hand-axes and the rostri-carinates are more rolled than the evolved Acheulian hand-axes, cleavers and other flake tools. The Giddalur collection consisted of a large number of Abbevillero-Acheulian hand-axes. Comparatively the rostri-carinates are very few. The number of cleavers⁹ is also not high.

NAGARJUNAKONDA⁹

The explorations conducted at Nagarjunakonda on the bank of river Krishna have revealed extensive sites of Early Stone Age (Lower Palaeolithic). On the one hand the Palaeolithic Man, who settled near river Krishna, had an access to a great supply of fine riverine shingle for making pebble tools, while on the other hand, the one, who

8. Soundara Rajan K.V., 1952, Stone Age Industries near Giddalur, District Kurnool, A.I., Vol. 8, p. 68.

9. Soundara Rajan K.V., 1953, Stone Age of Nagarjunakonda, A.I., Vol. 14 pp. 49-77.

settled along the nullah and near the hill saddles, applied himself to the Clactonian primitive core tools and rostroid, of Victoria-West types. In Nagarjunakonda valley two industries of Early Stone Age and one of the Middle Stone Age have been found in clear and distinct horizons. The industries belong to the Acheulian phase of the Chelles-Acheulian industry. The tools were manufactured from the riverine pebbles by detaching primary flakes by the block-on-block technique. The Nagarjunakonda industry consisted of more numbers of cleavers than any other type of tool. Hand-axes constituted 17.2 per cent, cleavers 21.4 per cent, choppers 5.9 per cent and scrapers 2.9 per cent.

YELESWARAM¹⁰

The Early Stone Age at Yelawaram is concentrated near the nullahs, emanating from Mallannagutta towards west of Yelawaram village.

THE KARIMNAGAR REGION

The Karimnagar region is ill-explored but for the pioneering work, along the upper reaches of river Godavari, by the Deccan College under the able guidance of Dr. Sankalia.

Early and Middle Stone Age artefacts, like hand-axes and flake-scrapers, were reported by Munn¹¹ from Allur and Jangoan villages in the Peddapalli taluq. In association with these artefacts he also found a few fossilised bones like humerus of *Bos Frontalis*, possibly radius of the same species, and fragment of an antler of *Cervus* Sp. Ind. Cores and flakes, etc., belonging to Neolithic culture (probably Microlithic), were noticed at Gunjapadiga (Mantluni taluk), Parlapalli, Koheda and Sanigaram (Karimnagar taluk) and Vemulavada¹² (Sirsilla taluk).

From Adilabad Haimendorf¹³ collected a large number of scrapers and blades (now in London University). Flake artefacts were noticed by S. Nagabhushana Rao¹⁴ at Asifabad in Adilabad district.

Dr. Nandikeswara Rao¹⁵ reported the occurrence of Early Stone Age tools in the Pranahita valley of the Adilabad District. He noticed that the lower and middle pebble horizons containing Chello-Acheulian artefacts and the upper zone of Early and Middle Palaeolithic technologies respectively. He also found the Early Stone Age artefacts in soil terraces

10. Sarkar H., 1959-60, IAR, p.12.

11. Munn L., 1925-26, ARADN, pp.19-20.

12. Rajagopal M.V., 1974, A.P. District Gazetteer of the Karimnagar District, p.33.

13. Haimendorf C.V., referred by Subba Rao B., 1958, personality of India, p. 67.

14. Nagabhushana Rao S., 1964-65, IAR, p.1.

15. Nandikeswara Rao C.V., 1976, personal communication.

of residual mounds, ridges and scrap foot zones within the altitude of 137-150 m. The lower gravel horizon contained a few artifacts which are entirely composed of choppers and hand-axes. The middle gravels consisted of core and flake tools. The intermittent gravel lenses, overlying the middle gravels, showed some Upper Palaeolithic elements which are composed of side scrapers, scrapers and a few flakes worked on chert. The second quaternary unit of old alluvium consisted of microlithic blades and scrapers, etc., chipped from agates and chalcedony. This occurrence, near flood basin which is in the vicinity of the river at 120 m. high, is of significance as it points out to the migration of Late Stone Age Man to fertile alluvium.

Dr. Rao also noticed some organic remains, such as dentition of *Bos*, *Hystrix*, *Equus* *Crocuta*, which are associated with Early Palaeolithic cultural levels.

In the recent years Thakur Raja Ram Singh¹⁶ had explored many Early, Middle and Late Stone Age sites. He also discovered Upper Palaeolithic elements at many places. Some of the Early and Late Stone Age sites have been discovered on eroded or bed rock surfaces, or in the nullah beds, which may not help to know their true horizon. Most of the tools have been noticed from the factory or open air sites.

The Middle Stone Age artefacts too were found from factory or open air sites and eroded bed rock surfaces. The nullahs in the area to the west of Godavari Khani in the Peddapalli taluk, locally known as 5th, 6th and 8th Inclines, cut across gravel sections, denuding Middle Stone Age artefacts. A few trenches excavated by road contractors near Ramagundam, Godavari Khani, Medipalli and Malkapur villages, all of them in the Peddapalli taluk, reveal implementiferous gravel sections, ranging in thickness from 3 to 4 metres. The MSA artefact bearing gravel sections are capped by clayey silt, 15 cm. to 2.50 metres thick and lying directly on the weathered sandstone.

The blade burin industry was noticed at Chittiyalpalli in Peddapalli taluk in a gravel section of 20.35 cm. width.

Sites Recently Discovered

Most of the Stone Age sites so far discovered, except those at Pochera and Chittiyalpalli, situated between parallels of 79 and 79.45 Long. E and 18 & 19 Lat. N., are found in between 450-500 contour lines along river Godavary from Dharmapuri in Jagyal taluk to Khanapur in Manthani taluk. The hand-axes, cleavers and flake

16. Raja Ram Singh, Thakur, 1976, personal communication.

artefacts are found in between Anthergoan and Manthani (west to east) in the Peddapalli taluk, a stretch of 35 km. and Narsapur of the Laxettipet taluk, in Adilabad to Ramagiri hills in the Peddapalli taluk (north to south), a stretch of 20 km. Some of these sites have been described here-

Godavari Khani is the modern name for the coal-bearing area, which includes parts of the old villages viz. Jangoan, Andugulupalli, Malkapur, Sundilla, Jallaram, Chandanapur, Veerlapalle, Venkatarao-palle, Allur, Vakilpalle, etc. Early Stone Age tools like hand-axes cleavers, chopper-chopping tools, ovates and discoids, are found on weathered surfaces to the north, south and west of the 6th Incline. The Middle Stone Age tools, such as scrapers, points, borers, small hand-axes and bifacial points, are found in the vicinity of the above two places and also to the east of 5th Incline, south of 8th Incline, north-east of 9th Incline, etc. The Late Stone Age artifacts are found to the west of the Guest House, near 4th and 2nd Inclines to the south of 6th/A Incline, east of 8th Incline and south of 8th/A Incline, etc. Many of these sites are, in fact, factory sites. The tools are fresh but in some cases patinated due to contact with brown or red soils.

The site to the east of the Regional Hospital at Godavari Khani yielded more than 40 hand-axes, comprising an area of 10 sq. metres, besides a few cleavers, discoids and pebble choppers, etc. The hand-axes were made either on round or flat pebbles of quartzite. The cross-sections of these tools are biconvex, plano-convex, triangular, rectangular and trapezoidal. As a rule the edges are straight and neatly chipped or, in some cases, retouched. There are a good number of fully worked hand-axes. The size of the hand-axes ranges between 8 to 20 cm. The cleavers are much less in number, ranging between 11 to 16 cm. in size. Typologically the industry can be designated as mid/late Acheulian.

The 6th Incline yielded a good number of M.S.A. flake tools, which includes side and end-scrapers, bifacially worked scrapers, notches, pointed flakes, unifacially and bifacially worked points, small hand-axes, borers, tanged scrapers and arrow-heads on thin blades. Most of them are fairly retouched. The flakes are either simple or Levolloision in type. It may be noted that MSA tool-types, found at Dubbapalle, Vakilpalle and 9th/A Incline, are much diminished in size compared to the tools found elsewhere.

Late Stone Age (Upper Palaeolithic)

In Europe, West Asia and North Africa the flake culture was replaced by Upper Palaeolithic Blade and Burin Industries. The situation in India was presumed to be different and it was concluded that no such blade and burin industry ever existed independently in India. It was

also believed that the Late Stone Age had directly evolved from Middle Palaeolithic. Occasional discoveries of blade cores, blades and even blade tools were announced now and then. Burkitt¹⁷, working on the Kurnool industries, designated them as Series-III. Such tools were also reported at Nagarjunakonda¹⁸, Kurnool¹⁹ and Ganga valley²⁰. Recent studies by Murthy²¹ on Renigunta in Chittoor District and Betamcherla Caves²² in Kurnool, by Paddayya²³ on Shorapur Doab, Karnataka, and by Reddy²⁴ on Vemula Industry in Cuddapah proved beyond doubt that the blade and burin industry existed sandwiched between the Middle Palaeolithic and the Mesolithic in India.

As already noted the blade and burin industry was first noticed in Godavari Khani and Ramagundam in the Peddapalli taluk and later at Gollakota in the Laxetipet taluk. Very recently, in 1976, Raja Ram Singh discovered two important sites near Pochera waterfalls and Chittialapalli, on river Svarna in the Adilabad District.

The site at Pochera (78. 22 1/2° Long. E. 19.20° Lat. N.) yielded fluted cores and blades exactly in the nature of microliths, but much bigger in size (3.5 to 5 cm. long, 1.9 to 3.2 cm. broad). The blade tool kit includes side and end-scrapers, notches, noses, points, borers, and a good number of burins. Among these blades, a collection of Middle Stone Age cores, flakes and flake tools are mixed up, reminiscent of the earlier industry existing at the region.

Chittialpalli is situated on the right bank of river Svarna on the Nirmal-Bhainsa road in Adilabad district. The site is much exposed due to cultivation and erosion. The silt, capping the morrum gravel, is now eroded away. Here the blade-burin industry is associated with Middle Stone Age artefacts.

17. Cammaide L.A. & Burkitt M.C., 1930, *Fresh Light on the Stone Age of South-East India*, Antiquity, Vol. IV., pp.327-339.
18. Soundara Rajan K.V., 1958, *op.cit.*, pp. 49-113.
19. Isaac N., 1960, *Stone Age Cultures of Kurnool*, unpublished Ph.D. thesis, Poona University, referred by Sankalia H.D., 1974, p.213.
20. Sarma G.R., 1973, *Radio-carbon and Indian Archaeology*, *Stone Age in Vindhya and the Ganga Valley*, pp. 106-110.
21. Murthy M.L.K., 1970, *Blade and Burin and Late Stone Age Industries around Renigunta, Chittoor District*, *Indian Antiquary*, Vol. IV, Nos. 1-4, pp. 106-128.
22. Murthy M.L.K., 1974, *A Late Pleistocene Cave Site in Southern India*, *Proceedings of the American Philosophical Society* 118:2, pp. 196-230.
23. Paddayya K., 1970, *The Blade Tool Industry of Shorapur Doab, Peninsular India*, *IA.*, Vol. IV: Nos. 1-4, pp. 165-190.
24. Reddy K.T., 1970, *Vemula Industry in Cuddapah Basin*, *IA.*, Vol. IV, Nos. 1-4, pp. 227-234.

Late Stone Age Sites²⁵

The Late Stone Age sites are noticed in Ramagundam and Godavari Khani areas and also in Karimnagar, Jagtiyal, Manthani taluks of the Karimnagar district and Luxettipet taluk of the Adilabad district. The L.S.A. people lived and worked not only on the height of red sandy soils but also on the top of the hills and foot hills, wherever a water source like rivulet, or spring was available in the vicinity. A few sites are also noticed over the rocky outcrops, in the midst of black soil.

The important L.S.A. sites in the Peddapalli taluk are Bugga (around a spring) at the foot hills of Takkellapalli range, Devunipalli, Rangapur (foot hills), Gopiahpalli, Kasulapalli (hamlet of Palthem), Sultanabad (among the rocky outcrops), Kadhem Kangarthy, outcrops and foot hills in red or brown soils, around Peddapalli outcrops, Dharmabad (a spring in the hills) and on top of the hills, Muthacam, near a rock shelter in Mallannagutta hill, Puligundam, Gudisalaper (foot hills), Rachapalli (foot hills), Vemnur (nullah) and Sabbitram village facing the Gourigundam waterfalls and also on the hill top.

The site at Gaurigundam²⁶ (Plate 2) jointly visited by the author and Raja Ram Singh, is unique and most prolific of all the sites so far discovered. The site, situated over a sandy silt plateau and facing the Gaurigundam waterfalls, literally yielded hundreds of cores, blades, blade tools and waste flakes. The cores found here are of three kinds, viz. flat, pointed and obliquely based. The tools are blunted backs. The assemblage also includes primary flakes, chips, parallel-sided blades, lunates, a variety of points, obliquely blunted backs and occasionally trapezes and triangles. No scrapers are noticed.

Apart from the surface collection a 3×3 metre wide trench, cut to a depth of only 12 centimetres, yielded the following material: cores-160, blades and primary chips-2,813, tools-416 and waste flakes-579, totalling 3968 artefacts. The site spreads to an area of 60 × 48 metres.

A Late Stone Age site, discovered by Raja Ram Singh and later visited by the author, is situated between Buchayyapalli and Narsainpalli, both of them hamlets of Medipalli village in the Peddapalli taluk of Karimnagar district. The site is situated among the sandstone outcrops on the right bank of the rivulet, which meets river Godavari within 4 km. The outcrops are of brownish sandstone of Sullavai series of Purana rocks. A hundred metres away is found a full-fledged Microlithic site, over sandy bed rocks. The plain bed-rock was incised with graffiti

25. Raja Ram Singh, Thakur, 1975-76, personal communication.

26. Personal investigation with Raja Ram Singh, Thakur, 1974.

marks such as triangles, enclosing a rayed circle, a bow, a fish, squares and rectangles with dots inside, probably representing the way of life and the nature of tool kit of the Microlithic people.

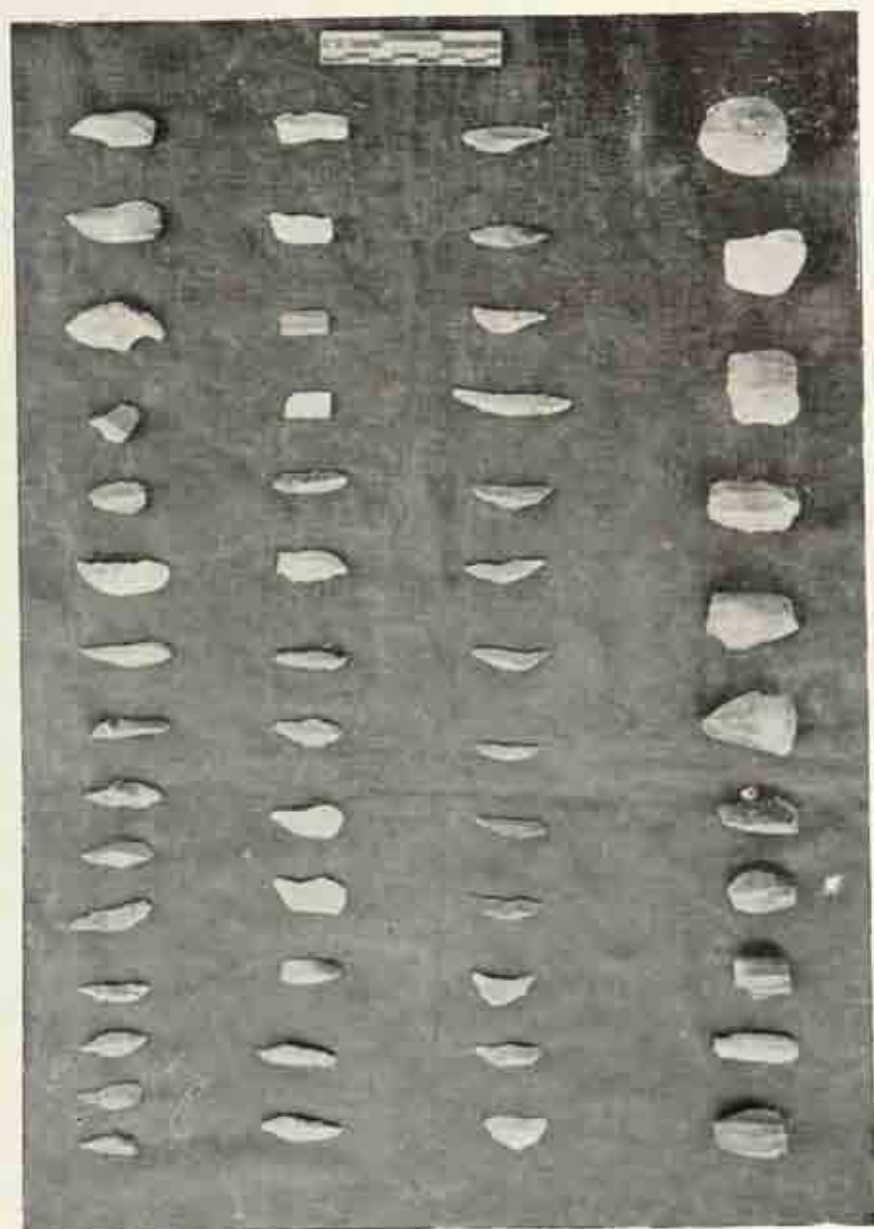
Slightly away, at about 90 metres from the Microlithic site, is noticed a loosely cemented breccia, formed of the angular fragments of sandstone, besides rounded quartzite pebbles and cobbles, quartzite cores, flakes, blade flakes and tools of M.S.A. or Late M.S.A., pebbles of chert and chalcedony, L.S.A. cores with flakes, blades and tools. The cementing agent is sandy earth. The mass is not fully cemented but is in the process of.

Raw Material Used

The Lower and Middle Palaeolithic tools were mostly made on quartzite, coarse to fine grained but occasionally on chert too. The sites, where Middle and Upper Palaeolithic tools were made exclusively on chert, are noticed at Gollakota, Pochera and Chittialpalli. The material mostly used for Upper Palaeolithic tools is chert and chalcedony, while agate, jasper and cornelian were also employed.



Early Stone Age (Palaeolithic) tools from Amarabad.



Microlithic tools from Gaurigundam

PART II

THE PROTO-HISTORICAL CULTURES

CHAPTER III ... The Neolithic Period

CHAPTER IV ... The Megalithic Period

CHAPTER III

THE NEOLITHIC PERIOD

Introduction

For a very long time archaeologists have been puzzled by the presence of a great number of stone-axes among the surface finds. The recent explorations and excavations have brought to light many Neolithic settlements, throughout the sub-continent. The Azilo-Tardenoisian civilization may be the precursor of the Neolithic Period. The place of its origin is still an enigma though some archaeologists presume that the origin was somewhere in West Asia.

The civilization was rather a hybrid one in the sense that the archaeologists have to deal with a number of peoples, brought together by a common culture of which the salient features are (1) agriculture, (2) domestication of animals, (3) pottery-making, (4) polishing of stone implements, and (5) in the later period developing of techniques of metallurgy. All the pottery from the earlier Neolithic period was of hand-made. Burnishing with a dabber or spatula was probably a later development.

The habitations of the Neolithic Man in Europe were of three kinds viz. (1) cave, (2) land, and (3) lake dwellings. The cave habitation was common, where limestone hillocks were available in plenty, as in England, France, Italy, Germany, Spain, etc. The Stalagmite formations in the limestone caves sometimes sealed the Neolithic layers below them. Land habitation is often found in the form of underground pits, covered by roofs of boughs and twigs; the superstructure was made water-proof by a coating of clay. Sometimes pits had different compartments.

Self-protection was the main pre-occupation in the Neolithic times, which made the Neolithic Man sometimes seek a lake as his habitation. He built his home on piles in shallow water. At some distance from the shore of the lake of Zurich, Switzerland a digging operation for raising the level of the reclaimed land, brought to view wooden piles with pieces of stag-horn, stone hatchets and other implements. Similar discoveries were made in many other lakes in North Italy as well.

In the Indian context so far no Neolithic lake habitation has been noticed, though occasionally some caves as at Bethamcherla in Kurnool

district have traces of Neolithic habitation. In India the Neolithic Man preferred two types of dwellings—firstly the pits as noticed at Burzahom in Kashmir valley and Nagarjunakonda in Guntur district and secondly over the high lands, adjoining the hills. The coarse pottery and some polished stone-axes, excavated previously at Burzahom, exactly resemble the antiquities dug from a site of Neolithic China.¹ The textured pottery, rectangular knives, bone harpoons, pit houses, polished stone-celts of ovoid or quadrangular section and stone-rings all have direct analogies in such places as Southern Siberia, Mongolia, Manchuria and Northern China.

In central Deccan, especially in the upper courses of the Krishna, Bhima and Tungabhadra rivers, a remarkable series of archaeological studies have been carried out. Following the excavations of Sir Mortimer Wheeler at Brahmagiri, the study was continued by B. Subba Rao, F.R. Allchin, B.K. Thaper, M.S. Nagaraja Rao and others.

Probable Origin of the Culture

In the basal gravels of the black soil of the third aggradational phase in the Narmada Valley at Narsingpur and Hoshangabad, De Terra and Paterson² found an industry characterised by flake blades, scrapers, burins, borers and points. They designated this industry, which is analogous to the Mesolithic culture of Syria and Africa, as the Black Soil Industry and classified it as the Proto-Neolithic. Subsequently Dr. Sankalia³ has brought out important evidence, bearing on the stratigraphic evidence of this industry in the basins of rivers Pravara, Godavari, Malaprabha in Karnataka, Tapi in Khandesh and Chambal and its tributaries in Malva. Since this industry contained occasionally fluted cores, which are characteristic of succeeding Neolithic-Chalcolithic cultures, typologically and technologically it may be the precursor of the advanced Microlithic Industry of the succeeding Chalcolithic-Neolithic phase. Stratigraphically the description of the Industry as Proto-Neolithic was confirmed at Navdatoli⁴, where stone mace-heads of typical hour-glass sections, associated with white and cream-slipped pottery with black design, red ware with black painting (Black-on-Red), Black and Red ware, Microliths and hammer stones, were found succeeding the flake industry.

1. Ward L., 1954, "The Relative Chronology of China through the Hun Period", *World Archaeology*, Chicago, p. 134.

2. De Terra & Paterson, 1939, "Studies in Ice Age and Associated Human Cultures," Washington, pp. 233-34.

3. Sankalia H.D. & Banerjee K.D., "Middle Palaeolithic Cultures of Karnataka, Deccan, and Central India," *Journal of the Palaeontological Society of India*. Sankalia H.D. & Khatri A.P., "Stone Age Cultures of Malva", *Ibid*.

4. Sankalia H.D., 1952-53, *The Excavations at Maheshwar and Navdatoli*, p.36.

At Langhnaj⁵ in Gujarat three zones of microliths are found without any variation in types. In the first zone the microliths were associated with comparatively recent pottery, along with a tanged iron dagger. In the second zone a different type of pottery, with incised lattice decoration, was found. The pottery is thin and red slipped over a pale brown surface. It was associated with microliths, a large quartzite mace-head, having a central perforation with an hour-glass section, and pieces of two Neolithic celts of schist and a copper knife. In the third zone, which is purely Microlithic, sandstone quern fragments, microliths, ill-baked pottery have occurred. People were buried in a highly flexed posture, mostly in east-west direction within the kitchen debris.

Thus, in Gujarat, we have evidence of a Microlithic folk being introduced into agriculture and pottery, and the original Mesolithic food-gatherers becoming Neolithic food producers.⁶ The evidence noted at Langhnaj in Gujarat was confirmed at Nagarjunakonda⁷ in the Krishna Valley. The clear stratigraphical evidence obtained here shows that the pre-pottery Microlithic industry was succeeded by a mixed lithic industry, containing the true hunting type of microliths, along with cores, flakes of trap and quartzite, made by a different technique and wheel-made pottery.

At Sanganakallu, Phase-I was characterised by the presence of a large number of heavily patinated flakes of trap and sandstone, associated with a crude Microlithic industry of quartz and chert without any definite evidence of the association of pottery. Phase-II is divided into two sub-periods on the basis of the relative quantitative distribution of two main fabrics of pottery—the pale grey-ware and the coarse brown and black-ware, which dominated the lower and upper levels respectively. The Sub-period-II of Phase-II is characterised by the presence of fresh stone-axes and flakes associated with a fine Microlithic industry of chert and jasper with types like parallel-sided blades and lunates, blunted along the arc. Sub-period-I, as suggested by Subba Rao, corresponds to the Early Neolithic stone-axe culture. It is characterised by coarse brown and black hand made wares and a few pieces of pale grey ware in diminishing proportions. In this phase a few sherds, with violet and purple paintings on a dull back ground and sometimes on a dull red slip, were found.

Phases-I and II are separated by a thin barren layer on which Subba Rao has suggested that the gap between Phases-I and II may be

5. Sankalia H.D., 1965, *Excavation at Langhnaj*, p.20.

6. Krishnaswamy V.D., 1960, "The Neolithic Pattern of India", *AI*, Vol. 16, p. 29

7. Soundararajan K.V., 1958, "Studies in the Stone Age of Nagarjunakonda and Neighbourhood," *AI*, Vol. 14, pp. 49-113.

filled-up by a large number of lightly patinated chipped and ground-tools. He characterised this phase as the Early Neolithic.

At Peddabankur in Karimnagar district fluted cores, with pointed flat or chisel ends, along with crescents or lunates, parallel-sided blades, leaf points, besides a unique arrow-head of milky quartz, were found over a thin gravel layer, capping the natural morrum-bed. This implementiferous layer was sealed by a thick deposit of black cotton soil of 45 cm. thickness. The collection was associated with a highly weathered and fragile pottery in tiny fragments. The surface of the pottery looks dull red, possibly due to water logging, as indicated by many shells of mollusc in the sterile black cotton soil cap. Scores of ground-stone tools of trap, found in unrelated strata in the course of excavation, may belong to the above phase, which may be the Early Neolithic as suggested by Subba Rao. There was no evidence of any pale grey, brown or black wares typical of the Neolithic.

At Polakonda in Warangal district the total Neolithic deposit, with no visible variation in soil composition, is as thick as 2 m., which is an indication that the Neolithic habitation continued for a considerably long time, unruffled by any extraneous influence. The ceramic assemblage consisted of grey, pale-grey, blotchy brown, pale red and small fragments of black burnished wares. The pottery from the early levels is more gritty and distinguished by low firing, leaving a thick black core inside. No painted pottery was recovered in any of the trenches. A few sherds were decorated with incised oblique slashes, chevrons, cord and finger-nail impressions, etc. The Neolithic phases at Polakonda may correspond to Phase-II, Sub-period-II of Sanganakallu.

As a result of the above discussion it may now be possible to reconstruct the sequence of the Neolithic Culture.

Stage-I of the Neolithic is represented by Phase-II, Sub-period-II of Sanganakallu and Phases - I and II of Polakonda in Warangal district. This is characterised by fresh stone-axes and flakes, associated with pale grey, coarse blackish grey, reddish brown and small quantities of burnished ware. No painting with red ochre or pre-firing purple was noticed at Polakonda. The stone blade industry is scanty as also the knowledge of metal. The other noteworthy feature is the absence of floors and the rarity of other antiquities such as beads, etc. For the above reasons this may be designated as the Early Neolithic.

Stage-II is represented at Utnoor, Maski-I, the Lower Neolithic of Piklihal and parts of Brahmagiri. This is characterised by ground stone-axe industry, a rudimentary flake-blade tradition, domestication of cattle, sheep, goat, etc. The pottery consisted of hand-made grey, brown buff and lesser quantities of black or red burnished ware, slipped

with purple painted decoration. Black-on-red painted ware appears for the first time on the scene. There are also a few terracotta figurines of humped cattle and birds as at Piklihal, Sanganakallu, besides rock paintings and rock brusings. Still there is no evidence of house planning and building material. Post-holes and rammed earth floors in various levels suggest that the structures were made of perishable material. Copper has already been introduced, as represented by a rod of indeterminate use, as found at Maski. Stone beads constituted amethyst, carnelian, agate, chalcedony, coral, shell, glass, etc. Animal remains included fresh water mussel, common rat, short-horned humpless cattle, buffalo, sheep and goat. Domestication of these animals may demonstrate a pastoral economy of the settlers, tending towards food production.

Stage-III is represented by Brahmagiri-I (a) and I (b), Tekkalakota-I, T. Narasipur-I and Nagarjunakonda. This phase is marked by mud-floors and circular hutments, bronze and copper objects, crude microliths of jasper, flint, agate, common opal and other locally available material, besides hand-made pottery of coarse grey-fabric, burnished wares with types like simple globular, perforated, and spouted vessels. Occasionally painted sherds, and incised wares are also present. Burials of infants, with bodies folded-up and packed into a pot, inhumation and extended burials, processes of exhumation and secondary burials and double burials represent the different modes of the disposal of the dead.

Stage-IV represented by Tekkalakota-II, Payampally and Hallur-II of Period-I. This is marked by the specialised types of copper implements, and profuse blade industry. The pottery consisted of burnished ware, brown and black, coarse dull red and painted wares akin to the Jorwe fabric, prolific stone-axe industry, blade industry marked by parallel-sided blades and lunates, etc. Copper objects constituted double-edged axes and fish hooks. The floors were paved with locally available schist. The phase is also marked by urn-burials as found at Tekkalakota, Hallur, Brahmagiri, Dhaimabad, Nevasa and Nagarjunakonda.

The Sites and their Distribution

In 1860 Le Mosurier discovered the first Neolithic tool in India and drew attention to his discovery of ground and polished stone implements in the valley of river East Tons in the United Provinces (now Uttar Pradesh). The evidence of the earliest Neolithic period in Andhra was discovered in 1876 by Robert Bruce Foote in the form of an adze of sandstone, at a place called Vadamanu in the Guntur district. In the neighbouring state of Karnataka, the first ground stone-axe was recorded by Col. Meadows Taylor, in 1852 itself, at Lingsugur in Raichur district. Robert Bruce Foote, between 1885 and 1891, discovered more than 50 sites, which are geographically located in the present districts of Hyderabad,

Krishna, Guntur, Nellore, Kurnool, Cuddapah and Anantapur. For well over half a century, no new investigations have come to light, after the pioneering work of Foote. However considerable evidence of the Neolithic farming communities was recorded in the excavations, conducted by the Nizam's State Department of Archaeology, at Maski (1936-37), Wheeler (1942), Gordon (1945), Subba Rao (1948), R. Subrahmanyam (Nagarjunakonda 1954-60), Allichur (1960), Ansar, and Nagaraja Rao (1969 at Sanganakallu). More recently by Sankalia (1964) and Nagaraja Rao and Malhotra (1965) at Tekkalakota, Nagaraja Rao (1971) at Hallur, Sundara at Tardal (1971), Seshadri (1971) at T. Narsipur, Paddayya (1973) at Kodakal, Hanumantha Rao and Nagaraju (1974) at Hemmige, and Rani Reddy (1976) at Palavoy.

During the year 1976, Polakonda in the Warangal district was excavated by the author under the auspices of the Department of Archaeology and Museums, Government of Andhra Pradesh. In 1977 a minor excavation was conducted by N.R.V. Prasad at Budigapalli, a Neolithic-Chalcolithic site. In 1978 Prasad excavated Chagatur in the Mahabubnagar district, another Neolithic-Chalcolithic site. The distribution pattern of the sites, as outlined above, shows that the neolithic farmers had settlements in almost all parts of Andhra Pradesh.

Ecology and Settlement Pattern

There is no evidence of plant remains of the Neolithic times in the Karimnagar region. The ecological setting may be similar to the present day arid and dry climate, characterised by thorn and scrub jungles and interspersed by grass lands. But there must have been a thicker vegetation and heavier rainfall. The area, at which a prolific collection of stone-axes, possibly used for felling trees, is found, completely denuded of any kind of forest. At Polakonda the Neolithic axes and adzes were found over the sloping plains of the south face of Peddagutta hills. The area must have been thickly covered with jungle during the Neolithic times. Similarly the early historical site at Peddabankur had a scatter of Neolithic axes, indicating the presence of a thick jungle in the past. The entire historical site at Peddabankur was covered with a thick deposit of *regur* or black soil over a bed of granitic morrum. At a few spots the black soil covering was washed away, denuding the natural morrum. Many Microlithic implements were collected over these denuded spots. At the same level, under the thick black soil cover in other excavated trenches, the industry was noticed over the same morrum bed, indicating that during post-microlithic period the black cotton soil must have been deposited during a wet period.

Arid and dry climatic conditions during the Neolithic period was evidenced by the presence of some plant remains, such as acacia

(*thumma* in Telugu) or *Dalbergia* and *Zizyphus* (ber or *regi* in Telugu) species from the site of Palavoy⁸. Muzumdar and Rajaguru have proved, on the basis of their analysis of the fossil soils from the Kupgal excavation, that similar environmental conditions were present during the Neolithic times. The plant remains of acacia species from Maski⁹, of teak (*Tecoma grandis*) from Hallur¹⁰ and *Zizyphus* from Kodekal¹¹ suggest a similarity of climate in Andhra Pradesh as well.

Fauna

The animal species included cattle, sheep, goat, swine, antelope, possibly horse¹², gastropoda, common Indian rat, domestic humped cattle, deer, hog, wild elephant, tortoise and squirrel, etc.

Settlement Pattern

As in other parts of India the Karimnagar region was also a favourite haunt of the Neolithic Man. Occasionally Neolithic axes were collected around Late Stone Age sites and sometimes in the vicinity of Megalithic burials but permanent settlements are very few. The recently discovered settlements are Thogarrai on the banks of river Maneru, Kadambapur, also on the Maneru, and Peddabankur, all of which are in the Peddapally taluk, Budigapalli on the banks of the Peddavagu, in the Husnabad taluk of Karimnagar district, Polakonda, Kolakonda and Deveruppula in Jangoan taluk of Warangal district.

THOGARRAI [Plates 3 (a) & (b)]

The ring of granitoid hills, enclosing plains of regur, the perennial river Maneru in the neighbourhood and dolerite dykes, appearing like black greenish stripes over the granite hills, made a very congenial abode for the Neolithic man. The rock shelters, in the hills at a considerable height from the black soil plains, gave him both protection from wild animals and a cosy shelter from the rigors of climate, the regur plains for his farming and the river in the vicinity for supply of water all through the year. A Neolithic factory site was discovered over a granitic outcrop. The collection included a large number of unfinished tools, besides a good number of finished adzes and axes.

8. Ramireddy V., 1976, *The Prehistoric and Proto-historic Cultures of Palavoy, South India*, p.114.

9. Ghosh S.S. & Chowdhury K.A., in Thapar B.K., 1957, *op.cit.*, pp. 140-141.

10. Vishnu Mitra in Nagaraja Rao M.S., 1971, *Proto-historic Cultures of Tungabhadra Valley (Hallur Excavations)*, p. 125-133.

11. Mahabale T.S. in Paddayya K., 1970, *Investigations into the Neolithic Cultures of the Shorapur Doab, South India*, p.70.

12. Alur K.R. in Nagaraja Rao M.S., 1971, *op.cit.*, p.114.

KADAMBAPUR (*Plate 4*)

Kadambapur, about 5 km. from Thogarrai, is mainly a Megalithic burial site, where a number of Neolithic stone-axes were collected over the sloping plains of the hills, abutting river Maneru. Many rock shelters and caverns, noticed in the hills, must have been occupied by the Early Neolithic man. A number of grinding grooves were noticed over the granite outcrops. Extensive exploration had not resulted in the discovery of any permanent settlement. But a few sherds of hand-made grey ware, collected betwixt the river and the plains, may imply that the Neolithic settlement might have been eroded away by the seasonal flood of the river, as at present the river bed is not more than 2 m. deep.

PEDDABANKUR

The historical mound, lying by the side of the Karimnagar-Peddapalli road, has been excavated under the supervision of the author for six field seasons. Many Neolithic stone-axes were collected on the surface and in the unrelated cultural strata. The entire historical site was covered by a deposit of black soil, not more than 2 m. in thickness at any spot. There are neither granite hills nearby for his shelter nor the dykes of dolerite for making his tool-kit. Apparently the tools must have been imported from places like Kadambapur or Thogarrai, etc. Peddabankur is an example where the Neolithic man, instead of selecting a hilly region, settled over the plains, possibly to serve his farming needs.

BUDIGAPALLI

The entire Husnabad taluk in the Karimnagar district and the adjoining Huzurabad taluk in the Warangal district are studded with large number of megalithic burials. Budigapalli, a small village at about 6 km. from Husnabad, is encompassed by a ring of hills, locally known as Valasagattu, Sanjivarayanigattu, Venkayagattu, etc. The granitic hills, the rock shelters and a nullah, emanating from the hills, and now cross-banded for supplying water to a huge lake, were suited for a Neolithic settlement. Dolerite rock is available in plenty. Explorations over the early historical mound, girdled by a mediaeval mud rampart at the foot-hills of Valasagattu, yielded, besides early historical pottery, Neolithic stone-axes, a mace head with a perforation of hour-glass section and a few sherds of hand-made grey ware. The 3 main rain gullies, emanating from the hills, deeply cut the mound. At the lowest levels of the sections, cut by the nullahs at a depth of nearly 2 to 2.5 m. the afore-mentioned assemblage was noticed.

Recent trial excavation conducted by Prasad¹³, over the early historical mound, established the presence of Neolithic-Chalcolithic occupation at the lowest level. A few Neolithic celts, associated with Microlithic cores, blades and lunates, a few steatite beads and a hearth, hand-made grey ware pottery are the finds recovered.

KOLAKONDA

Kolakonda village, on river Peddavagu in the Jangoan taluk of Warangal district, is another important Neolithic settlement, which is situated in between the granitoid hills on the east and the river on the west to a stretch of 200 square metres approximately.

DEVARUPPALA

It is a considerably big village near Mondrai in the Jangoan taluk of the Warangal district. The Neolithic settlement is situated at about 2 km. south of the village, over the black cotton plains near the granitic hills. In the vicinity of Neolithic settlement there is an extensive Megalithic cemetery consisting mostly of pit circles and a few cist burials.

POLAKONDA (Plate 5)

Polakonda, a small village on the road from Jangoan to Suryapet in the Jangoan taluk of Warangal district, is about 10 km. from Devaruppala and approached from Mondrai. To the north of the village and abutting the Peddagutta hill, an early historical site was noticed. A good number of polished stone-axes was observed over the early historical site, the plains and the sloping terraces on the south-west of Peddagutta hill.

While exploring a channel, dug-out recently by the Public Works Department, along the Kommulagutta hill (a northern extension of Peddagutta), a few sherds of hand-made grey ware of Neolithic affinity were recorded. Adjoining the channel, and at the find-spot of the grey-ware sherds a trench was sunk, which revealed a hearth of burnt clay, associated with a large number of hand-made Neolithic pots and a broken axe. A granite rubber, with a squarish profile and evidently used for burnishing pottery was also found near the hearth. The rubber was finely ground on one side and pecked on the other.

The Neolithic settlement over the sloping terrace at the foot of the Kommulagutta hill spreads to an area of 100 sq. m. The soil to a depth of more than 3 m. was covered with sandy silt, brought down from the neighbouring hills by the rains in course of time. Abutting the habitation is a shallow rivulet, emerging from the gorges of the hill. Though dry

13. Prasad N.R.V., 1977, 'Budigapalli', an unpublished report.

at present, the nullah must have been much deeper during the Neolithic times, else there is no other source of water in the vicinity.

Material Culture

Out of the material remains of the Neolithic people, which survived the ravages of time, was the stone-axe, made out of igneous or metamorphic rocks, such as diorite, dolerite and basalt. The other less common varieties are small tools either hafted or used as adzes, small chisels, picks, fabricators, hammer-stones and sling stones, etc.

Technique of Manufacture

Coghlan¹⁴ has postulated several stages of manufacture. According to him the Neolithic tool might have been developed from a Palaeolithic sharp-edged scraper. A lighter variety of ground-axe is associated with the Solutrean and other Upper Palaeolithic Cultures of Western Europe. Foote¹⁵ recorded four stages of manufacture from the earliest stage of chipping till their completion as highly polished tools. Subbarao¹⁶ also suggested four stages. Allchin¹⁷ postulates the following five stages before it finally appears as a finished ground or polished tool.

- (1) Primary rough flaking to block out the tool;
- (2) Secondary fine flaking to regularize the form and sharpening of the edge;
- (3) Pecking or hammer dressing;
- (4) Edge grinding; and
- (5) Overall grinding.

As already noted, a prolific factory-site was discovered over one of the hills at Thogarrai near the source of a dolerite dyke. Large number of axes were collected from the spot in various stages of manufacture.

The tools collected from the factory site at Thogarrai appear to have been manufactured in an Acheulian factory site. All the tools have been made out of dolerite and the author collected many a tool which are in their final stage of manufacture. The trap rock from which the tools were made is found in small handy nodules. A large number of primary flakes and chippings of the tools indicates that the Neolithic man took large nodules and adopted alternate flaking method, usually noticed

14. Coghlan J.H., 'Evolution of the Axe,' JRAI, LXXIII, p. 34.

15. Foote R.B., 1916, *IPPA*, p. 86.

16. Subbarao B., 1948, *Stone Age Cultures of Bellary*, p. 31

17. Allchin F.R., 1960, *Piklilal Excavations*, A. P. Govt. Archaeological Series, No. 5, p. 86

in the Acheulian sites. This method is intended to get a straight cutting edge on both the sides. Whenever he could not find a convenient core to get two cutting edges he adopted the method of blunting one of the cutting edges similar to that of a backed blade, as noticed in the Late Stone Age tools. Later the blunted edge was again flaked alternatively to get a triangular body. The alternate step flaking gives the sharp zig-zag cutting edge but with high ridges on both the sides. These high ridges, as suggested by Subbarao, must have been removed with a pointed tool, such as a cylindrical-type fabricator found elsewhere. The cutting edge, on both the sides, was made sharp by removing small neat flakes along it.

Dr. Sankalia¹⁸ suggested that a nodule or pebble is fashioned into a pointed butt-axe by the block-on-block technique or direct percussion method with a spheroid or discoid hand-hammer, the resultant product of which looks like an Abbevillian hand-axe. In the second stage the uneven surfaces, ridges and depressions were removed with a pointed tool. This is technically known as 'pecking' or 'battering'. In the third stage the tool was ready for grinding. For this, concave or basin-shaped boulders were chosen and with the help of sand or similar coarse material and a little water serving as an abrasive, the tool was moved up and down in the groove. Many such grooves, appearing like lenticular slits of about 5 cm. depth, were noticed at Polakonda and Kadambapur. As suggested by Sankalia, at a time only a small portion, usually the edge portion, was ground.

Many writers, including Subbarao¹⁹, suggested the fourth stage when the whole axe was finally polished. Foote²⁰ also found, on the 'north hill' in the town of Bellary, well polished grooves, 7" to 8" long and 1 to 1½ inches deep. These grooves evidently were intended for the edge-grinding but not polishing. Polishing must have been done on concave surfaces as suggested by Sankalia.²¹ Only one fully ground axe was recovered from the Peddabankur excavations. The pointed butt was also fully ground. The fully polished tools appear more like cult objects than tools. Possibly when the edges were blunted after a prolonged use the axe was utilised as a grinder.

The fine grained rocks were always favoured for making the edge tools and the coarser and harder stone for rubbers, grinders, hammers, etc. The axes, which form more than half of the total collection, were made of basalt, while the hammers, rubbers and grinders of coarser rocks, such as granite, quartz, diorite and quartzite. Foote recorded

18. Sankalia H.D., 1964, *Stone Age Tools, their Technique, Names and Probable Functions*, p. 80.

19. Subba Rao B., 1948, *op.cit.*, p.32.

20. Foote R.B., 1916, *op.cit.*, p. 87

21. Sankalia H.D., 1964, *op.cit.*, p.81.

that spheroid rubbers, which he designated as corn-crushers, were made of pistacite (green stone). Allchin²² also noted that nearly half of the spheroid rubbers were made of pistacite.

Forms of Tools (Plate 6)

Among the finished tools the most common one is the axe. The transverse (medial) cross-section varies from tool to tool. They are (a) elliptical, (b) lenticular, (c) rhomboidal, (d) rectangular and (e) triangular. The butt-end is sometimes blunted, and rounded or pointed.

(a) Axes, with an elliptical or ovoid cross-section, are comparatively few in Karimnagar region, only two tools having been recovered from Peddabankur. These have a triangular profile and were fully polished, including the body and the butt-end. No chipped surface is retained without polish. The sharp, sometimes straight or convex, cutting-edge was obtained by polishing both the surfaces. The types found at Bellary²³ have the sides rounded off and sloped gently to meet at the centre, leaving little or no flat medial area. The forms found at Nagarjunakonda²⁴ have generally an unworked middle portion with lateral margins absent in all the specimens. The cortex surface is retained in patches and it was considered, in view of its association with predominantly microlithic assemblage, as one of the earliest types from Nagarjunakonda.

(b) The tools with lenticular cross-section are also generally rare but one or two of such type were included in the collection from various sites in the Karimnagar region. They are, sometimes, trapezoidal and long ovoid in shape. The lenticular section was obtained by leaving flat surfaces on both the sides and converging into a point from side edges. The cutting-end is almost semicircular. This type of tool is generally thin and must have been used for some light work. A tool found at Polakonda, measured 10 cm. in length, with the cutting-edge ground on both the sides. It is very thick towards the butt-end. The specimen from Peddabankur was unfortunately broken in the middle and only the lower portion, with cutting-edge, is found.

(c) The tools of rhomboidal section are conspicuous by their mid-ribs on both the surfaces. In external form they are triangular with straight or convex cutting-edge. A tool found from Peddabankur with similar cross-section is as long as 23 cm. ($9\frac{1}{2}$ inches). This shape, like that of pick-axe, was particularly adopted for having good grip for

22. Allchin F.R., 1960, *op.cit.*, p.65.

23. Subba Rao B., 1948, *op.cit.*, p.23.

24. Sarkar H., 1975, *Nagarjunakonda-Memoirs of Archaeological Survey of India*, No. 755, p. 133.

handling rather than for hafting. As such, a lengthy tool must have been used for digging with the butt-end and as well for cutting with the opposite end.

(d) Tools with rectangular cross-section are also rare. They have broad sides, straight or slightly convex, and generally flat on both the ventral and dorsal surfaces. Axes with semi-rectangular section were found in Bellary and also in Amaravati in the Guntur district.²⁵ This type was also reported from Nagarjunakonda, which has, more or less, parallelogrammatic cross-section with splayed-out cutting-edge, formed by bevelling of the upper surfaces.

(e) *Triangular Cross-section*: Only two broken specimens, one from Peddabankur and the other from Kadambapur, were recorded. The butt-end of the first tool is blunted and the cutting-edge is missing. The tool was fully ground with a straight mid-rib on the ventral side, the dorsal being flat. The specimen found at Kadambapur was unfinished but broken in the middle. It has sharp longitudinal sides and a thin almost straight-cutting edge. It is possible that this tool was meant to serve as an adze rather than an axe.

Adzes (Plate 7)

These tools may be divided according to medial section into 3 types, viz. (a) Planoconvex, (b) Triangular, and (c) Rectangular.

The adzes are comparatively more rare than axes but four excellent specimen have been collected; two from Budigapalli, one from Peddabankur and one from Polakonda. One tool from Budigapalli, with a trapezoidal section, is 18.5 cm. long. The cutting-edge on the plain dorsal side is bevelled. Only the cutting-edge on both the surfaces was ground. The pecked rugged surface was left unground for transverse hafting. This is one of the finest tools, a type which is not probably recorded anywhere so far.

The other specimens from Budigapalli, Polakonda and Peddabankur are smaller and the plain dorsal surface is also slightly ground. In this region adzes with triangular and rectangular cross-sections are not found. The types recorded from Nagarjunakonda²⁶ are mostly plano-convex. There are also two examples with triangular cross-section. One specimen has a very sharp and straight cutting-edge, bevelled at both the surfaces.

25. (a) Subba Rao B., 1948, *op.cit.*, p. 33

(b) Chakravarti S.N., 1960, *Hand-Book of Prehistoric Antiquities, Prince of Wales Museum.*, Pl. II.

26. Sarkar H., 1975, *op.cit.*, p. 135.

Shoe-last-celt (*Plate 8*)

Another more specialised form of the tool is the plano-convex shoe-last-celt. The upper dorsal convex surface curves round to meet the flat underside, which rises up gently to meet it like the head of a fish. Peddabankur excavation recorded a fine specimen with a plano-convex cross-section. The butt-end is narrower than the cutting-end but not pointed. Both the ends, the flat undersurface and the top ridge were smoothly polished. The pecked lateral surfaces were left unground so as to facilitate hafting. Subbarao²⁷ suggested that the presence of this highly specialised tool might indicate that the Bellary Neolithic folk were agriculturists. He feels that the tool was hafted adze-wise to an 'L'-shaped piece of wood and used as a hoe. Sankalia²⁸ noted that some plano-convex tools were used as mullers having a flat undersurface and a convex top and slightly rounded. The tool found at Peddabankur would eminently suit to mill the grains, etc. over a 'mealing trough,' described by Foote²⁹ as the fully ground undersurface appears to be continuously rubbed over a concave surface. Both the ends of the tool are mint fresh without any usage marks, by which the more probable surmise could be that it was used as a muller than as a hoe.

Another tool, also from Peddabankur, 9.5 cm. in length (3.7 inches) with a plano-convex cross-section has a pointed butt. The cutting-edge is bevelled at the underside to meet the smooth uppersurface. The lateral sides from the middle of the tool to the butt-end are left unground, possibly for handling. This tool must have been used as a hand tool for either horizontal cutting or vertical scraping.

Pick

Picks are generally rough and irregular tools, with narrow sharp working-edge and blunted butt-end. They have sometimes a convex longitudinal profile and a flat undersurface with either a single or double cutting-edge. At Piklihal³⁰ two specimens were recorded; both were flaked roughly to a square section and bear traces of heavy wear upon the body and would thus seem to have been hafted.

A lengthy specimen, collected from Kadambapur, has a plano-convex cross-section with a pointed butt and a sharp cutting-edge, which was damaged after use. But for the cutting-edge the remaining-body of the tool was left unground.

27. Subba Rao B., 1948, *op.cit.*, p. 34.

28. Sankalia H.D., 1964, *op.cit.*, p. 88.

29. Foote R.B., 1916, *IPPA - Notes on Ages and Distribution*, p. 200.

30. Allchin F.R., 1960, *op.cit.*, pp. 89-90.

Spheroid Rubbers [Plate 9 (a) : Nos. 1, 2, and 3,]

It is likely that the rubbers, either spheroid, discoid or oval, were used for a variety of domestic uses, mainly as crushers, rubbers or pounders and possibly as hammers. There are two such tools in our collection, recovered from Polakonda excavation in the Neolithic levels. The discoid rubber [Pl. 9 (4)] was found near a hearth in association with large number of hand-made grey ware pot-sherds.

Allechin³¹ described the flat discoid grinding stones, carefully flattened on both sides, as pallets. He suggested that they were probably used for grinding powders, etc. Such a pallet found at Polakonda is much damaged on one side with battering marks while the other side is well preserved. On this side also marks of battering are apparent. The other specimen made of granite is an all ground spheroid rubber found in the early Neolithic level.

Ring Stones [Plates 9 (5) and 10]

These are thick, small round or rectangular tools with their surfaces smoothed by pecking and grinding, having a central hole of about an inch or half in diameter from both the surfaces. Sankalia³² suggested that such ring-stones seem to have been used as weights for digging sticks and are thus suggestive of primitive agriculture. It is also possible, as he further suggested, that they served as mace-heads. At Bellary, on the north hill, Justin Boys³³ found one such specimen, Fawcett³⁴ another at Kupgal and Foote³⁵ some other at Kanehikeri. In the excavation at Navadatoli,³⁶ 33 objects which can be classed as ring-stones were found. Sankalia³⁷ also found one ring-stone in the Mesolithic context at Langhnaj. Todd³⁸ found one complete specimen on a hillock at Yerangal, near Bombay along with Microliths. They were also reported from Mohenjodaro³⁹, Harappa⁴⁰, and Chanhudaro⁴¹.

Peddabankur excavation yielded a completely ground flat stone of pink granite, with a knob-like protuberance on one face and depressions

31. Allechin F.R., *ibid.*, p. 91.

32. Sankalia H.D., 1964, *op. cit.*, p. 86.

33. Foote, 1916, *op. cit.*, pp. 81-82.

34. Fawcett cited by Subba Rao B., 1948, *op. cit.*, p. 41.

35. Foote R.B., 1914, *Indian Prehistoric and Proto-historic Antiquities, Catalogue Raisonné*, p. 100.

36. Sankalia H.D., et al, 1971, *Chalcolithic Navdatoli*, pp. 323-33.

37. Cited by Sankalia H.D., 1971, *ibid.* p. 329.

38. Todd K.R.U., 1960, "The Microlithic Industries of Bombay," *AI. Vol. 6*, p. 9.

39. Marshall J. 1931, *Mohenjodaro and Indus Civilisation*, pp. 59-61.

40. Mackay E.J.H., 1938, *Further Excavation at Mohenjo-daro*, pp. 459-61.

41. Mackay E.J.H., 1943, *Chanhudaro Excavations*, p. 224.

for a right hand grip on the two lateral sides. Evidently this may be one of the two pieces of a rotary quern, while the other piece may be the above described ring-stone with a hole of hour-glass section. The ring-stone must have been rotated from both sides and due to continuous rotation of the knob inside the hole, it had taken an hour-glass section. The rotary quern was, perhaps, used for milling grain in small quantities. The possibility of their utility as mace-heads may be ruled out as it cannot be hafted securely with a wooden handle due to the ridge in the middle of the hole.

Querns

The querns or mill-stones, with concave surfaces, are usually made of granite. Two types of querns may be distinguished viz. (a) with a circular grinding surface, brought about by round ball-like mullers, and (b) flat surfaced querns. The querns are prepared by hollowing out a roughly oblong block of granite. The hollow surface became deeper after repeated use. In some cases the flatter underside was also used. The quern, made of granite, from Polakonda excavation has a concave surface and a flat underside.

Blade Industry

The Neolithic culture was invariably associated with blade industries in most of the sites. At some places the industry is much richer than the pecked and ground stone. It is generally non-geometric and consisting of a high proportion of simple artefacts, besides much waste material. They include, primarily, long and short parallel-sided blades, lunates and fluted cores. Typologically they are very much different from the Microlithic industry of the Late Stone Age. Foote noticed many Microliths, in association with stone-axes, in Patapadu in the Kurnool district.

Subba Rao⁴² classified the Microlithic industry, characterised by short blades, fluted cores into three categories: (1) the pointed or sharply rounded cortex, (2) the flat base, and (3) the chisel-ended. Many cores have faceted platforms, which is an indication that the core was prepared in advance by removing small flakes for the punch to rest firmly at the time of striking.

The implements from Brahmagiri⁴³ blade industry were divided into 7 types, viz.

- (1) double-edged blade without retouch; some blades have one edge slightly serrated;
- (2) blades with battered blunted back by steep retouching;

42. Subba Rao B., 1948, *op.cit.*, p. 41-42.

43. Wheeler R.E.M., 1947-48, "Brahmagiri and Chandravalli, 1947, Megalithic and other Cultures in Mysore State" *AI, Vol. 4*, p. 250-253.

- (3) crescentic blade with battered back;
- (4) narrow leaf-like blade with point at both ends, and battered back;
- (5) beaked graver (burin);
- (6) chisel-ended blade; and
- (7) side scraper.

At Maski⁴⁴ the industry is mainly a flake-complex, dominated by blade industry and with a marked emphasis on the production of narrow forms. Significantly some geometric forms, such as trapezes and burins, were also noticed.

The industry at Nagarjunakonda⁴⁵ in the Guntur district has no impact of ribbon flake tradition, as noticed at Maski, Brahmagiri and Piklihal. The blades have a tendency to become shorter in length with the advancement of Neolithic culture. The tools were mainly classified into five types, viz., (1) simple blades, (2) backed blades, (3) lunates, (4) points, and (5) scrapers.

In the course of excavation at Peddabankur in the Karimnagar district a large collection of Microliths was recorded. The industry is mainly non-geometric but for a few pieces of triangles and trapezes. The materials are chert, chalcedony, cornelian and jasper, quartzite and crystal. The collection included conical cores with pointed bases, and longitudinal flake scars merging at the pointed base struck from a common platform. In some cases the cortex surface was also chipped. The point is so sharp that it can be effectively used. There are also double platform cores operated from both the sides. Chisel-ended cores are a rarity.

The flakes are mostly parallel-sided with both the edges retaining the primary flake-cut without retouch. The tools are long and often thin with triangular or sometimes trapezoidal in cross-section when the medial edge removed by taking out another flake. The second variety of blades are leaf-shaped with a concave undersurface and narrowing to a distal end. The medial ridge is often truncated and it is likely some were used as arrow-heads.

The lunates have secondary working on the margin opposite the sharp edge, which is invariably the chord path. The secondary working, consisted of steep, often vertical blunting, does not show any trimming. The section is very often wedge-shaped.

44. Thapar B.K., 1957, "Maski, 1954 - A Chalcolithic Site of the Southern Deccan" *AI*, Vol. 13, pp. 89-101.

45. Sircar H., 1975, *op. cit.*, p. 139-153.

The scrapers are made either on a flake or re-utilised core. The thumb nail scraper is discoid in out-line with trimmings all around the periphery.

The chip points were made from the flakes that taper from the butt to the point or by snapping fragments obliquely from both the edges of a thin flake. The butt-end appears to have been truncated for hafting. There is a fine example from Takallapalli (in the Peddapalli taluk), where the point was made by snapping fragments obliquely from both the edges and the butt-end truncated for hafting. This is made out of a flake of triangular transverse section, tapering to a point. A similar example is also found at Maski.⁴⁶

POTTERY

Many Neolithic tools have been collected from various sites in Karimnagar region but pottery is rarely found on the surface. Only the excavation at Polakonda gave an idea of the Neolithic pottery in this region. The pottery generally consists of crude and coarse hand-made wares with a few burnished types. The clay is not fine. Coarse sand was often used as *degraisant*. The pottery was well-burnt to a grey, dull brown, or black colour, often with an unburnt core in the fabric.

The pottery is mostly plain and no decorations of any sort, either combed, incised or painted, are noticed. The clay used for Neolithic pottery from Maski has been found to contain a variety of minerals such as quartz, muscovite, biotite, chlorite, kaolinite and orthoclase, all of which go to form the granitic rocks. Paramasivan⁴⁷ also notes that the clay must have been procured from lacustrine sources, *i.e.* from the tanks and ponds.

The granularity of the texture suggests that the clay was not thoroughly levigated. The presence of large particles of quartz sand is a typical feature of the potteries of thick section. Mica is also an important constituent of the clay.

The striation marks appearing on some potsherds led Allchin to believe that the Neolithic craftsman employed the turn-table and anvil techniques. While their regular and indistinct striation marks testify the use of the turn-table, the employment of the beating method is borne out by the uneven thickness of the wall. Most of the rims of the jars were perhaps prepared on a turn-table and later luted to the hand-made body of the pot, which is the reason for their being thick and rough at or below the neck.

46. Thapar B. K., 1957, *op.cit.*, fig. 31, no. 35, pp. 97-98.

47. Paramasivan, 1967, "Investigations on Ancient Pottery from Maski in Levey 9th Ed. Archaeological Chemistry-A Symposium, Philadelphia, pp. 231-52.

At Polakonda we have some evidence of the type of a kiln in which the pots were baked. Allchin⁴⁸ suggested that the pottery would be fired on the ground with a mixed lot of fuel in something like a bonfire kiln. But the evidence at Polakonda appears contrary to this. The kiln, though a small one, comprised thick walls of clay in which the pots were kept and probably burnt by applying indirect heat. A part of the kiln, with many broken sherds of pottery nearby, and a discular dabber, apparently used to straighten the sides of the pots, were exposed.

Pottery from POLAKONDA [Fig. 1(a) and (b)].

The pottery from Polakonda, in the Jangoan taluk of Warangal district, was recovered from three main cultural horizons. The top layer consisted of modern humus, containing ashy brown sandy earth with a mix-up of rubble. The lower part is irregular and undulating due to erosion. From this layer the pottery of the late mediaeval period, mostly greyish and well-fired, was encountered.

Below this stratum is found a deposit of brownish sandy silt, of loose composition. The pottery of the Megalithic phase, consisting of red, tan, matt red and black-and-red wares, was encountered in this stratum. The recognizable shapes are deep bowl with flanged rim, vases with flanged and beaded rims, lid-cum-bowls, etc. The black-and-red ware shapes are mainly of dishes and rimless bowls. There is also a little mix-up of hand-made burnished brown and burnished black ware sherds. This overlapping had occurred, as it appears, not due to continuous habitation from the Neolithic to the Megalithic but to the settlement of megalithic people over an earlier inhabited and eroded surface. The other finds from this horizon are a few objects of iron, such as an arrow-head, a knife and a broken blade.

Below this stratum a thin sterile deposit of loose sandy earth and a thin gravel patch were recorded in two trenches, a trait not visible in other trenches. The total Neolithic deposit, with no visible variation in texture and composition than the earlier strata, is as thick as 2 m., which may go to prove that the Neolithic habitation continued for a considerably long time.

The neolithic ceramic assemblage consisted of grey, pale grey, blotchy brown, black burnished and pale (matt) red wares. The clay of many specimens was well levigated. However, in some vessels a regular admixture of sand and other refractory ingredients are noticed. No micaceous element is visible. The pottery from the early levels is more gritty and distinguished by low firing, leaving a black core inside.

8. Allchin F.R., 1960, *op.cit.*, p.30.

The entire range of pottery is devoid of the characteristic features of wheel-made pottery. As suggested by Allchin⁴⁹ two main techniques were possibly used, viz. the turn-table method and the dabber and anvil method. A large concave sherd must have been used as a turn-table, in which wet clay was kept and rotated for fashioning the forms. Dabber was used during the fashioning operations. The uniformity of the body suggests the use of some sort of turn-table: but the rims were fashioned with hand.

Surface Treatment

Some of the wares appear to have been treated with slip, devoid of any admixture of noticeable colour. The reddish brown, matted, grey or black, either of the exterior or interior, must have occurred only in the course of firing. The uniformity in thickness of the body may suggest that they were made on some sort of wheel, although the majority of bigger pots were by hand. Some of the rims appear to have been modelled by hand. No painted pottery was recovered from any of the trenches. A few sherds were decorated with incised oblique slashes and zig-zags, cord and finger nail impressions, etc. No graffiti marks are noticed. A single sherd of pale red ware, with an out-turned rim, has a very light spongy body, which floated on water.

Types

The selected types include a huge jar with an elongated neck and straight sides. On the shoulder is a thick horizontal applique band and decorated with finger-tip design. Another jar of similar body has a cord or cable design below the neck. Analogies are noticed at Tekkalakota⁵⁰ and Hallur.⁵¹

A channel-spouted deep bowl had its analogies at Hallur,⁵² Hemmige⁵³ and T^{*} Narsipur⁵⁴. Bruce Foote⁵⁵ discovered a similar bowl at Patapad, in the Kurnool district which he called it a milk bowl. It was painted with narrow purple lines below the edge of the lip near the spout. But over the Polakonda specimen no such painting is visible.

49. Allchin F.R., *Ibid.*, p.27.

50. Nagaraja Rao M.S. & Malhotra K.C., 1965, *The Stone Age Hill Dwellers of Tekkalakota*, p. 42, fig. 17 d.

51. Nagaraja Rao M.S., 1971, *op.cit.*, fig. 14; No.1, p.44.

52. Nagaraja Rao M.S., 1971, *Ibid.*, p.38, fig. 15, object 8

53. Hanumantha Rao M., & Nagaraju S., 1964, *Excavations at Hemmige*, fig.5, obj. 11, p.22.

54. Seshadri M., 1971, *Excavations at T^{*} Narsipur*, fig. 50, b.4, p. 257.

55. Foote R.B., 1916, *op.cit.*, Pl. 26, No. 2605-22, p.210

Small-sized bowls with featureless rims of medium to coarse fabric are quite common. Similar types occurred at Brahmagiri⁵⁶, Piklihal,⁵⁷ Maski⁵⁸ and Nagarjunakonda⁵⁹.

There is another huge jar with a featureless horizontally splayed-out rim with concave neck and globular or bulging profile. On the shoulder is a thin applique band, pasted horizontally, terminating into curved ends in opposite directions. This type, without the applique band, was also noticed at Piklihal⁶⁰, Hallur⁶¹, Nagarjunakonda⁶², Brahmagiri⁶³ and Maski⁶⁴. Khare⁶⁵ describes the pot as a Neolithic pot-urn.

Among the brown ware are a dish-on-stand and a lugged bowl. The lugged bowl is also recorded at Sanganakallu.⁶⁶

Disposal of the Dead

The evidence regarding the burial practices comes from Uttnoor, Piklihal, Maski, Brahmagiri, Tekkalakota, Hallur, T' Narsipur, Nagarjunakonda and Palavoy. At Uttnoor⁶⁷ the skeletal remains of an infant were found in a shallow depression in Layer-9. Only the ribs and one humerus survived unbroken, while the skull was completely crushed. Due to absence of teeth it was inferred that the skeletal remains pertain to a newly born child. At Piklihal⁶⁸ evidence of extended burials was recorded. In all, 3 skeletons have been found. The body, found in layer-6, was buried in an extended posture in a shallow coffin-shaped pit, which was covered with small stones. The body lay on its back, the head being roughly towards the north and slightly inclined to the right. Funerary articles included a spouted earthen ware jar, found to the left of the head and a tall vase, both hand-made and of burnished grey. The third skeleton, which was of an adult male, comes from layer-4. The body was lying on its back but the head oriented towards the south. The grave

56. Wheeler R.E.M., 1947, *op.cit.*, fig. 23; type 72, p.231.

57. Allchin F.R., 1960, *op.cit.*, Pl. 28, fig. 8.

58. Thapar B.K., 1957, *op.cit.*, fig. 11, p.44.

59. Sarkar H., 1975, *op.cit.*, fig.57, type 16, p.117.

60. Allchin F.R. 1960, *op.cit.* Pl. 27, No. 34 H, pp. 41-42.

61. Nagaraja Rao M.S., 1971, *op.cit.* fig. 15, No. 1, p.49.

62. Sarkar H., 1975, *op.cit.*, fig. 58; type 34, p. 119.

63. Wheeler R.E.M., 1947, *op.cit.* type 42, p. 227.

64. Thapar B.K., 1967, *op.cit.*, fig. 12, type 29 a.

65. Khare in Sarkar H., 1975, *op.cit.*, fig. 8, type 34, p.119.

66. Subba Rao B., 1948 *op. cit.*, pl. VIII; type XVII.

67. Allchin F.R., 1961, "Uttnur Excavations," pl.5 b.

68. Ananthanarayana Aiyer A., 1960, "Report on Human Skeletal Remains Excavated at Piklihal," *Piklihal Excavations*, APGAS, No. I, pp. 143-154.

pit was filled up and large boulders were kept on the top. The grave goods included five large chert blades, and two basaltic axes at the feet.

At Brahmagiri, evidence for the disposal of the dead comes from the Sub-phase I-B. Two kinds of burials, *viz.* the extended burials in grave pits and the burial urns, were encountered. The adult and grown-up children were buried in an extended position in a regular grave, which contained the body of a child of about 10 years age. In this case the body was oriented in the east-west direction, the head lying towards the east. The body was in fully extended condition and resting on its back. The left hand was placed near the pelvic region. Funerary offerings included a vessel with funnel spout placed near the head. Wheeler suggested that this vessel, with the cylindrical spout, might have been used for pouring libation into the mouth or ears of the dead.

The other kind *i.e.* the urn-burials were recovered from Sub-phase I-B. The urns were hand-made and dull mottled-grey in colour. They have globular body with wide mouth, flared rim and rounded base. The skeletal remains contained in the urns were invariably those of small children, whose bodies had been tightly folded to fit into the restricted space. The urns were usually covered either with a bowl, placed upright or inverted, or sherds of broken urns. A lipped or a channel bowl or a deep bowl was also used as cover.

At Tekkalakota⁶⁹, the burials of Period-I comprised two graves, embedded in the red morrum. The skulls and the long bones, of post excarnation, were buried in the N-S orientation, the head usually placed towards the south. In one fractional burial, remains of 3 individuals were found, indicating the possibility of a 'Community Burial'. It is more likely that it may be a family burial rather than a community one. In Period-II, there was evidence of extended inhumation. As many as 12 extended burials of adults, 11 of them found in a row, were exposed. The orientation of the adult burials was north-south, the head lying towards the north. In one case the skeleton was laid in four pots joined together, which is reminiscent of the Chalcolithic practice of the Deccan. The funerary offerings consisted of earthen ware pots, which included bowls of black and red ware, painted in white. Occasionally children were buried under the floor of the house.

Three burials have been excavated at Hallur⁷⁰ all of which are of the double-pot, containing bones of children. These pots were found buried, mouth to mouth and under rammed floors within a house. The burial furniture consisted of bowls of burnished grey-ware, small bowls

69. Nagaraja Rao, M.S., and Malhotra, K.C., 1965, *op.cit.*, pp. 27-33

70. Nagaraja Rao, M.S., 1971, *op.cit.*, pp. 29-30.

with squat body and smeared with red ochre on the interior. In another burial large storage jars were used for the burial purpose. These double jars, placed mouth-to-mouth, were decorated with a crude applique rope or chain pattern, and affixed with two small conical knobs. Nagaraj Rao has suggested that the shape of the burial urns and the typical applique knobs of the burial jars, symbolically indicate that the dead were given a re-entry into their mothers' womb. It is interesting to note that similar multiple pot-burials have been found in the Chalcolithic sites at Nevasa⁷¹, Diamabad⁷², etc., indicating the intrusion of the Chalcolithic into the Neolithic burial practices.

T' NARSIPUR

The single burial, uncovered at T'Narsipur,⁷³ was an extended one inside a roughly oblong cradle-shaped pit, having its major axis in the east-west direction. The body was lying on its back with the head towards the east and the crossed hands placed on the abdomen. Two large grey ware pots of globular body and everted rims were kept near the head. There was also a shallow-lipped bowl and a pottery neck-rest near the head.

NAGARJUNAKONDA

The most important evidence regarding the disposal of the dead comes from Nagarjunakonda⁷⁴ in the Guntur district. The funerary remains of the Neolithic people, inhabiting the valley, belong to three categories.

- (a) a cemetery for adults and children ;
- (b) urns for infants within the habitation area; and
- (c) a pit of an adult male.

Cemetery

The cemetery revealed two strata of burials. The earliest stratum is associated exclusively with extended inhumation burials. The burial furniture consisted of only pottery. The graves, associated with upper layer, showed the predominance of secondary burials preceded by a process of exhumation. Interestingly there is a double burial of a male and female, both of them adults, where some amount of intermingling of bones occurred. It is suggested by the excavator that the bones of both the dead were

71. Sankalia H.D., et al, 1960, "From History to Prehistory at Nevasa", 1954-56, The Deccan College, Poona, p.23.

72. Deshpande M.N., 1958-59, "Excavations at Diamabad", *JIR*, pl. XXV, p.18

73. Seshadri M., 1971, *op.cit.*, pp. 19-20.

74. Sarkar H., 1976, *op.cit.*, pp. 104-107.

inhumed at the same time, inspite of the fact that both of them might not have died at the same time. But the intermingling of bones may suggest that both the male and female were not buried at the same time. It is likely that either the male or female, who died first, was buried and later when the other partner died the burial must have been opened and the dead body interred. During the process of opening up of the burial and interring the second dead body the intermingling of bones might have taken place. However, this is a case of a family burial of the Neolithic-Chalcolithic. There is evidence that the children were also buried after excarnation. The orientation of the skeletons was invariably north-south, with the skull placed approximately towards the north. Pottery mostly comprised spouted vessels, deposited as the burial furniture. Pots were kept near the lower half, below the waist of the dead. Four spouted vessels in the case of skeleton No. 10 were found right upon the femur and tibia. This practice of placing the pottery over the bones continued during the Megalithic period as well (*vide*. Kadambapur Meg. III).

Only two examples of infant burial remains, deposited in urns, came to light from Nagarjunakonda. Fragmentary bones were found in urns inside the habitation area. Unlike the Brahmagiri urn-burials, which involved primary processes, those of Nagarjunakonda appear to be of secondary nature. There is no fundamental difference in the method of disposal of the dead between the infants and adults.

There is an unusual burial excavated in Pit. VIII of Site 46-A, which produced a skeleton in complete articulation. The pit was covered by a cairn-heap. The long hefty body was squeezed into the pit, making the middle portion of the skeleton sagging below. The orientation was from the north to the south. The excavator hypothesised that there might have been a practice of leaving hearth and home by the remaining occupants, consequent upon the death of their family member. When the usual practice of disposal of the dead at Nagarjunakonda was inhumation, after excarnation, why this particular burial was of a primary nature? Evidently, the kith and kin were afraid of coming nearer or handling the dead, who died possibly due to some contagious disease. The same fear of disease and also of sentimental attachment possibly led to the practice of cremation in the later period.

PALAVOY

The evidence of the dead at Palavoy⁷⁵ came to light in the habitation area in the form of four infant burials. All these were grey-ware urns or single pots, covered with ordinary or lipped bowls, or two pots placed mouth to mouth. Unlike at other places the dead were

75. Ramireddy V., 1976, *op.cit.*, p. 122

buried outside the house but within the vicinity of the habitation area. No burial goods came to light.

Housing Pattern

The physiographical and geological features have greatly influenced the establishment of the Neolithic settlements in Andhra Pradesh. The earliest settlements were usually made on the top of the granite hills or on the levelled terrace on the hill sides or on the saddles or the plateaux between two or more such hills. It appears that the Neolithic folk also chose open terraces at the foot-hills, wherever the natural rock shelters were available. Sometimes they selected black-soil plains as at Peddabankur. They also lived near the river banks at places like Kadambapur, Thogarrai, Kolakonda in north-western Andhra Pradesh and Chetnapalli and Naguladinne in the south-west.

During the second phase mud floors are in evidence and so are the circular hutments of wattle and daub on a wooden frame. At Palavoy,⁷⁶ a single floor with as many as 30 post-holes, circular in plan, has been traced. They ranged in diameter from 20 to 80 cm. The post-holes yielded considerable quantities of disintegrated wood of acacia or dalbergias species, indicating their use as posts in the house construction. The floor was made of pale brown soil mixed with sand.

Several circular and rectangular floors of various sizes, enclosed by huge granite boulders, were noticed on the slope and top of the Palavoy hill. Similar feature was also noticed at Piklihal,⁷⁷ Tekkalakota,⁷⁸ etc.

The presence of several rock shelters, found at Budigapalli and Kadambapur in the vicinity of the find-spots of the Neolithic celts or rock paintings, may indicate that these were occupied by the Neolithic man. The house plans in Karimnagar region may, more or less, agree with those noticed at other excavated sites such as Brahmagiri, Maski, Piklihal, Hallur, etc. At Piklihal and Tekkalakota there was evidence of walls of split bamboo-matting, plastered with mud and supported by wooden posts. The roofs of these houses were built of some perishable material and the floors daubed with red morrum-silt, rubble and occasional boulders. Plastering with lime or clay and dung was also noticed.

Subsistence and Economy

The economic life of the Neolithic man was a combination of agriculture, animal husbandry and hunting. Bruce Foote noticed

76. Ramireddy, *ibid.*, p.115.

77. Allchin F.R., 1960, *op.cit.*, pp. 19-20

78. Nagaraja Rao M.S., & Malhotra K.C., 1965, *op.cit.*, p.19.

several terrace-like structures, whom he designated as *linchets*, on the summit of the hills and their slopes. These *linchets* were both used for the habitation and farming. The clearing of natural plateau and construction of rocky platforms, as suggested by Allchin, is a distinct characteristic of the Neolithic sites. He thinks that most of the Neolithic settlements are found to coincide with these terrace-complexes. He suggested that the terraces served for three main functions, viz. habitation, cattle-penning and cultivation. According to him the tiny fields cultivated at Piklihal even to this day, often at considerable height from above the plains and over the terraces, may have a direct bearing on the survival of a practice, originated in the Neolithic times.

Self-protection was the main preoccupation of the Neolithic man, which made him sometimes seek his habitation over these terraces for the protection from wild animals. The terracing system must have served the primary need of self-protection and secondly, to some extent, the cultivation. With a sparse population and plenty of food in the form of fruits, tuber and wild grains available, his needs of the cultivation might not be so pressing. The Neolithic man depended, besides cultivation, upon hunting, fishing and on whatever naturally available to him such as fruits, vegetables and edible grasses or tubers. However the general occurrence of domestic implements, such as querns and grinders, may suggest some practice of agriculture. The evidence of grains such as horse-gram (*dolichos fiblorus*), green gram (*phaseolus madiatus*) and ragi (*eleusine coracana*) from Paimpalli in Tamilnadu, horsegram from Tekkalakota and ragi from Hallur, which are not far removed geographically or culturally from Andhra Pradesh indicates that similar grains were grown or procured during the Neolithic period here too. The jungles and shrubs were cleared and land made suitable for farming with the help of stone-axes and also by putting fire to the thorny shrubs.

The tiny blades of chert, etc. were perhaps used as barbs or arrow-heads and hafted to wood or bone with resins to be used as knives, sickles or blades. The nodules of chert were used for making fire, a practice endured till the present times. The other method was to churn wood, which would not be effective during wet season. Some pots with perforated bases, recovered at many Neolithic-Chalcolithic sites must have been used for storing fire.

It was suggested that fused bones of ox, exhibiting ankylosis, resultant of a heavy and prolonged concussion, recovered from Palavoy⁷⁹ and Hallur⁸⁰, may be a proof that the Neolithic farmer used the bull for ploughing operation or for prolonged heavy traction. Ankylosis may

79. Ramireddy, V., 1976, *op.cit.*, p.95, specimen 284.

80. Nagaraja Rao, 1971, *op.cit.*, p. 123.

not necessarily result due to the carrying of heavy loads but to restless movement with the damaged bone.

Cattle served his cultivation and food needs. The animal remains from various excavations reveal that he thrived on fresh water mussel, common rat, short-horned and humpless cattle, sheep, goat, deer, ibex, wild dog, wolf, antelope, spotted deer, tortoise, swan and fowl. The common rat is still being consumed by a section of the population. Horse was attested to for the first time at Hallur. The spheroid stone balls were employed as missiles for killing the fast-moving game.

Many bone tools, like axe-heads (Rami Reddy 1976), points, chisels blades and antlers, were used for various purposes. Some bone points or needles were used for removing excess of clay in the making of pots or in perforating them. Many bone points found in the Megalithic and early historical levels at Peddabankur indicate that they were also used as potter's pins as some of them were found near kilns. They were sometimes used also as sewing needles. Ramireddi suggested that the axe-heads, found in his excavation at Palavoy, were employed for skinning, scraping and cutting the hides.

Ornaments

There was no evidence of ornaments in the early Neolithic settlements in Andhra region. But in the Neolithic-Chalcolithic sites at Budigapalli and Chagatoor many steatite disc beads, terracotta beads and a few shell objects came to light. In the late Neolithic phase at Polakonda, single copper spiralled ring, which must have been used as a finger ornament, was recovered. The sites like Palavoy, Bastipadu, Velpumadugu yielded beads of steatite, agate, carnelian and chert. A large number of disc-shaped beads of steatite was found at Pusalapadu in the Giddalur taluk of Prakasam district, and Ramapuram⁸¹ in the Banaganapalli taluk of Kurnool District.

There was also a good collection of beads from other sites. They included beads of amethyst, carnelian, agate, chalcedony, coral, shell, glass and paste. Gold objects, though rare in other sites, yet were found at Takkalakota, in the form of a pendant or ear-ornament with coils in the centre and dumb-bells at both the ends. Considering the proximity of the gold mines at Hutti and Kolar their occurrence is justifiable. Nandikeswara Rao⁸², of Geological Survey of India, reported that there was clear indication of gold mining, as evidenced by the specks of gold in

81. Sarma I.K., 1967, "Painted Pottery from Poosalapadu - Andhra Pradesh and Further Exploration in the Cuddapah & Kurnool districts", *Indica IV, part II*

82. Nandikeswara Rao C.V., 1978, unpublished article.

the slag and gold quartz in the Chalcolithic level, at Narsapur in the Kalyandurg taluk of Anantapur district. He also reports that the Neolithic people had knowledge of diamond-bearing rocks such as kimberlite, etc. Gold coils have also been reported at Diamabad.⁸³

Art and Painting

The works of art of the Neolithic people, depicting the socio-cultural life, have survived in the form of rock-paintings and decorations on the pottery and brusings on the rocks and terracotta objects. The author recently chanced upon some rock paintings situated at Regonda and Budigapalli in the Karimnagar district, Kokapet in the Hyderabad district, Mundamala in the Mahboobnagar district, and Kethavaram in the Kurnool district of Andhra Pradesh.

The paintings were found at Regonda (*Plate II*), in a low rock shelter under the ceilings. Many ancient iron working spots were also discovered there. The paintings are of red ochre and consist of a group of tall men, some vertical lines intersected or by short horizontal lines at the top, indicating head and hands of humans, Nandipada trident with a long shaft, mounted over a box and intersecting a circle below, two little men, shown in lines, mounted over a horse of disproportionate size, horizontally placed tridents crossing a vertical line, trident with a small shaft, etc. On either side of these symbols are men or women with long curling plaited hair.

The paintings at Budigapalli are found at the top of the hill Valasagattu near Peerlagunda, inside a rock shelter under the ceiling, hardly about 1.50 metres in height. Here are found two horses with riders possibly holding spears and another horse with a rider on the back. One of the horses in the front line has stripes like that of a zebra. In the same level as the two horses are a man standing erect with his left hand kept akimbo and his right hand holding a long spear, resting on the ground. Slightly below the third horse is a figure looking like a circle with spokes.

At the other corner there is a trident above a circle with radiating lines and two oblique lines below the circle. The trident has a long shaft, which bisects the circle and goes below to serve as a third leg in addition to the two oblique lines. By the side of the trident-cum-sun disc symbol (Nandipada) is a couch, supported on legs with a reclining back (*Plate 12*).

This symbol, with a trident and a circle below is Nandipada, a very common one in many proto-historic paintings in A.P. This was also found over many orthostats of Megalithic cist burials at Chagatur

with a little variation. Instead of the curved lines below the circle they are shown at the top of the circle and below the trident.

The most notable of all from Budigapalli is a standing bull in a walking gait with the tail dangling away from the body. The bovine animal was fully painted, with a hefty body, short stumpy horn and a prominent hump. Unfortunately the painting has encrustation of black patches of fungus. In vigour and vitality the bull has parallels in Ajanta paintings only.

KOKAPET [Plate 13 (a)]

Kokapet village is at about 10 km. north-west of Hyderabad and near the lake of Gandipet, which supplies drinking water to the city. The proto-historic paintings are noticed under the ceiling of a rock shelter, perching at a height of more than 120 m. from the ground level. A few sherds of unburnished grey ware and polished stone-axes, collected in the vicinity, may be a convincing evidence to date them to the Neolithic-Chalcolithic period. There is a group of Megalithic pit circles, about a kilometre away towards the north of the paintings in the farm of Mukundas Govindas, a gem miner and dealer of Hyderabad. These paintings consist of herds of stag, with long curvacious horns, and a dog-like animal, thwarting the way of the stag herd.

At about a kilometre west of the Megalithic burials two more paintings of red ochre are noticed. One consists of a spiral. The second one is an inverted 'L'-shaped design, filled in with a wavy pattern, commonly noticed over the Malwa ware. [Plates 13 (b) and (c)]

MUDUMALA [Plates 13 (d), (e), (f) and (g)]

In Mudumala village in Makthal taluk of Mahboobnagar district groups of avenues and alignments of the Megalithic origin are noticed. On the south-west of the village there are some proto-historic rock brusings, containing a crudely incised humped bull with an upraised tail, the horns curving forward and genitals prominently shown.

There is also a human figure, possibly Mother Goddess, with out-stretched and upraised hands and legs apart. The breasts are shown hanging sideways. The third figure is a curvilinear trident over a circle along with the above two figures. There are three other curvilinear tridents with circles. One has side prongs curving outside and the circle is slightly ovoid. In the second, the side prongs are oblique and in the third the side prongs curve inwards with a perfect circle below.

KETHAVARAM (*Kurnool District*) [*Fig. 2 (a), (b) and (c)*]

Recently a group of paintings were discovered in the rock shelters near Kethavaram village in the Kurnool district. Geologically the rocks at Kethavaram are extensions of Kurnool limestones, which overlie the shale bed-rock. The whitish quartzitic formations at Kethavaram, with plain vertical surfaces, eminently served the primitive artist as a natural background. The long lines of hills, marked by deep crevices and caverns, formed into a horseshoe-shaped valley. Nowhere the hills are more than 60 m. high. Some of them, which afforded passage from ancient times to near by villages are locally named as Chinnachittari and Peddachittari. The entire valley is scattered with Middle and Late Stone Age tools of dark pinkish chert, agate, etc. The rows of caverns at the farthest northern end, known as the caves of elephants, require an intensive exploration.

The paintings, all of red ochre, are noticed over the front portion of the over-hanging rock shelters, and natural caverns. The principal theme depicted is the jungle life. The artist, sitting securely in his rock abode and visualising the jungle life he had experienced, gave expression to them on the natural canvas. The untrained artist was not restrained by any particular style. Whatever passed through his mind had provided an impetus to his brush. There was no confusion of colours. He chose a single colour to depict the varied species.

The people depicted were not strangers to the jungle life; they were part of it. We find a number of little men, shown in perspective, scaling a hill, or a man, with his genitals prominently shown, stood up in horror and raised his arms for help at the sight of a tiger. There is a head of a tribal chief wearing a diadem. Slightly away are two rows of stags, two in each row and facing each other, which is reminiscent of the theme noticed in the pottery of cemetery-H at Harappa.

There is a man standing over the branch of a tree, below which there is a scaffolding. The jungle life is represented by a good number of monkeys, briskly capering over rocks or wood, a bear scaling a hill, shown in triple wavy lines, probably in search of honey, squatting bulls enjoying siesta, birds, appearing like parrots, perching over trees, a herd of stags rushing forth in terror. There are some geometric designs such as a trident-shaped object, a zig-zag line tapering upwards, possibly indicating the hazardous ascent of a hill, an apsidal locale having three pathways and the interior intersected by horizontal lines, perhaps resembling the plan of a cave, a thoroughfare into which minor pathways merged, an oblique line or wooden post divided by spikes at regular intervals appearing like a ladder or flight of steps, series of double vertical lines, intersected by small

horizontal lines at the top resembling palm trees, etc. There is a square design, intersected by vertical lines, with sails and mast at the top, which may probably represent a ship or boat.

There are some curious designs such as an endless loop and two vertical parallel lines, intersected by two horizontal lines, the ends of which are connected by loops. These two designs are found in the Megalithic and Chalcolithic context elsewhere.

Above the paintings that are over the facade of Peddachittari cavern, there is a Brahmi inscription in ornamental characters and datable to around 2nd-3rd century A.D. It reads as *ka sa panjara guha*. At the top of the cavern there is a brick structure, datable to the early historical period, possibly coeval with the inscription.

The problem of ascertaining absolute age of the paintings is most acute. The theme of the multi-horned stags, facing each other, is a most common one of the proto-historic times. The aforesaid endless cord and the loop designs may also strengthen the conjecture. The Brahmi inscription, the brick structure at the top of the hill, and an extensive early historical habitation in the vicinity are evidences of late cultural intrusion into a jungle setting.

The Racial Features

The excavation at Polakonda, during the first field-season, gave us no clue to either the burial practices or the racial affinities of the early Neolithic man. In order to fill up this lacunae further excavation at Polakonda for the second field-season was taken up. Unfortunately the second attempt also failed. Even in the excavation at the Chalcolithic site at Budigapalli, in the neighbourhood of Polakonda and conducted by Prasad at my insistence, nothing fruitful has come out. Thus we have to fall back on the studies of the skeletal remains, recovered from other sites as at Nagarjunakonda, Piklihal, Maski, etc. Even Sanganakallu (Dr. Subba Rao, 1948), which can be favourably compared with Polakonda, has not yielded any skulls.

Nagarjunakonda, though of a late phase, is probably the nearest example with a regular cemetery of the Neolithic people away from their habitation. The skulls are dolicho and mesocranial. The studies of the skeletal remains from the sites of Brahmagiri, Piklihal and Tekkalakota revealed foreign, as well as autochthonous, racial elements ranging from Scytho-Iranian to Australoid or Proto-Australoid and Mediterranean.

Chronology

So far we have nine sites in the Southern Neolithic, which gave radio-carbon dates. Of these Palavoy and Uttoor are in Andhra Pradesh,

Hallur, Kodekal, Sanganakallu, T'Narsipur, Tekkalakota and Terdal in Karnataka State, and Payampalli in the North Arcot district of Tamilnadu. Of these two the earliest date comes from Kodekal (the Gulbarga district of Karnataka) and Utnoor in the Mahboobnagar district of Andhra Pradesh. The radio-carbon date for the ash mound at Kodekal⁸⁴ is 2365 B.C. and for Utnoor is 2138 B.C.⁸⁵ Unfortunately we do not have any date for Dr. Subba Rao's excavation at Sanganakallu. The results of radio-carbon analysis of the charcoal samples, collected from late Neolithic level at Polakonda,⁸⁶ gave a date of 1300 B.C. If we take the last Neolithic phase into consideration, as suggested by Dr. Allchin, who compared it with that of Jorwe in Maharashtra, it is possible to presume that the Neolithic period had a total lease of nearly 1500 years, possibly twice affected by outside influences, once by the Chalcolithic and later by the Megalithic.

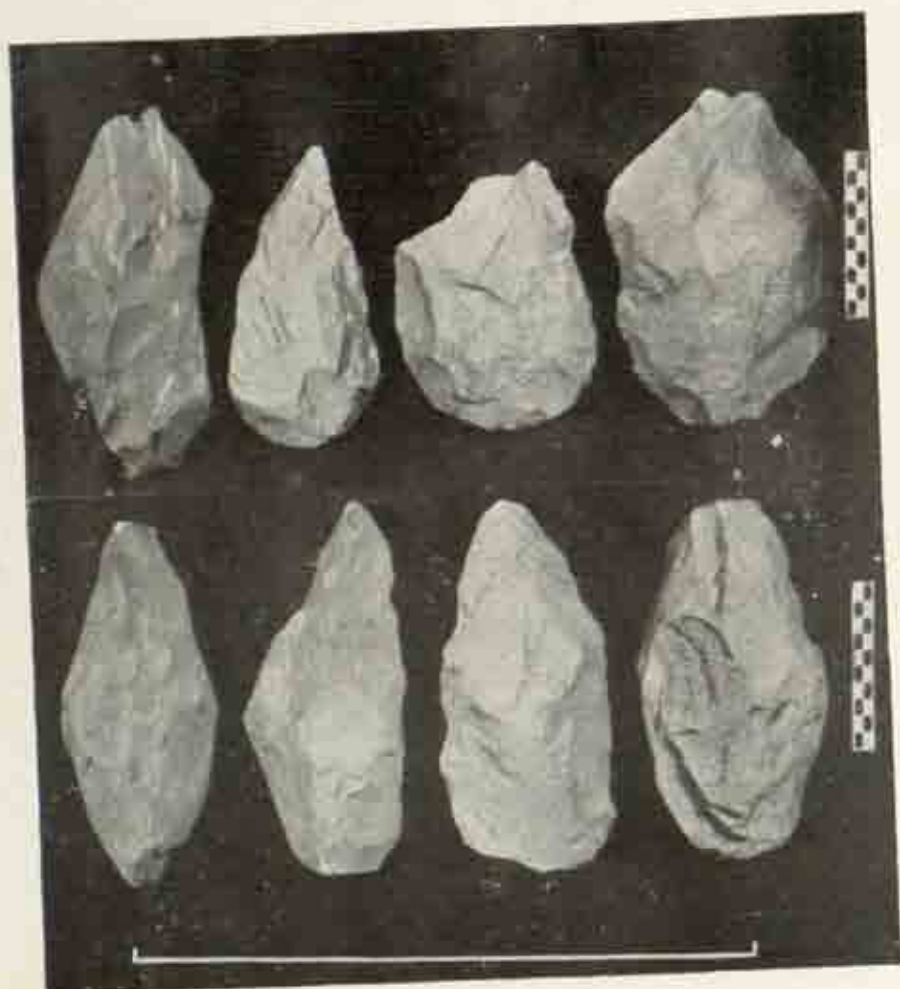
84. Ramachandran K.S., 1975, Radio-carbon Dates of Archaeological Sites in India, A.P. Arch. Series No. 42, p. 73.

85. *Ibid.*, p.142.

86. Result of Radio-carbon Dating Sample No. PKD/1/77, 13598 Age of Sample, 3255 \pm 120 years B. P. (1950 is the base year).



Neolithic factory site at Togarra.



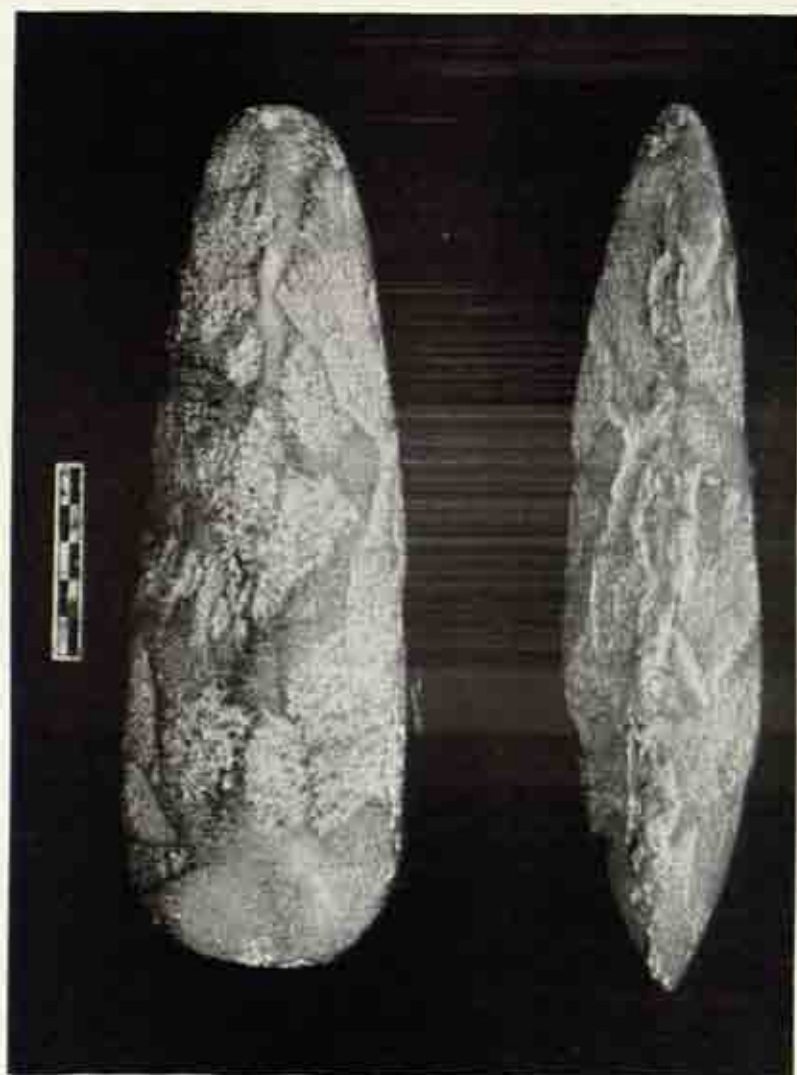
Neolithic tools in making from Togarraï.



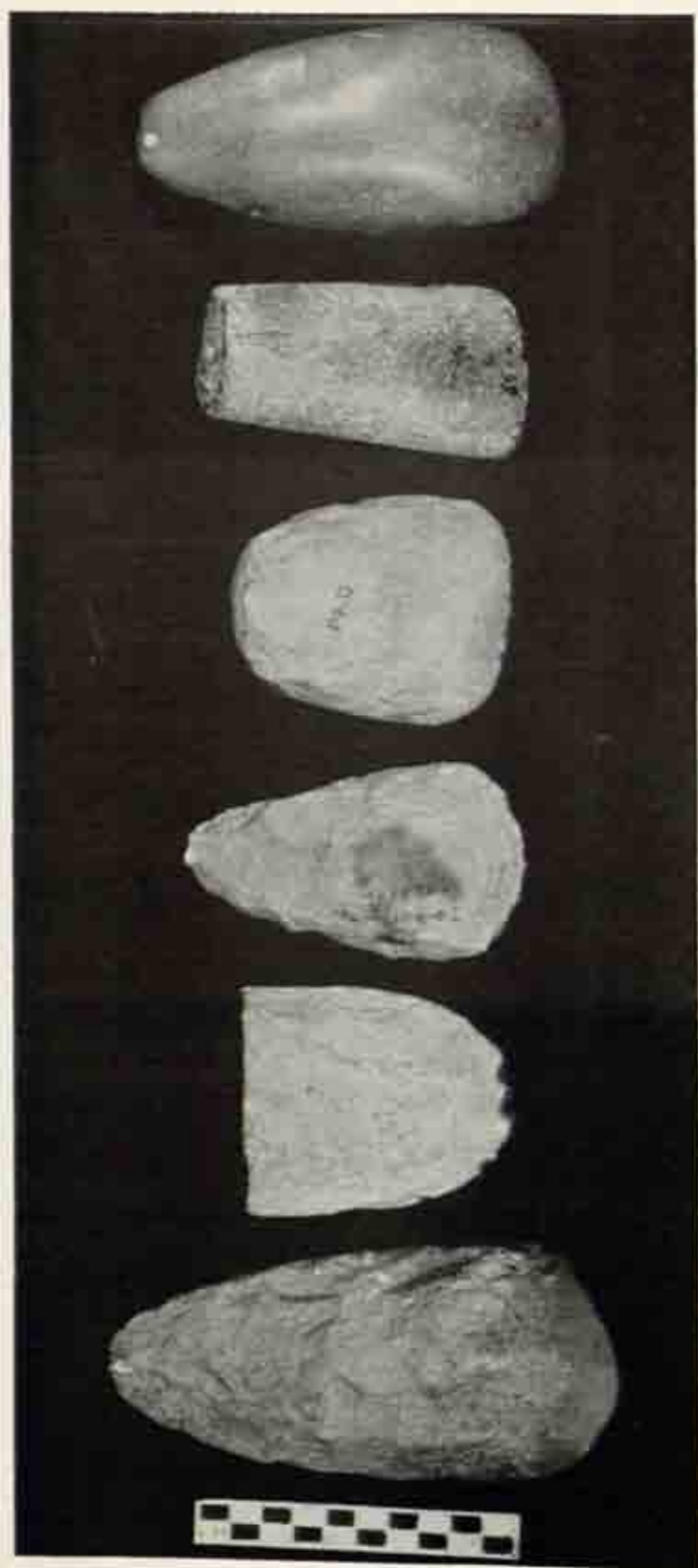
Grinding groove for Neolithic implements at Kadambapur.



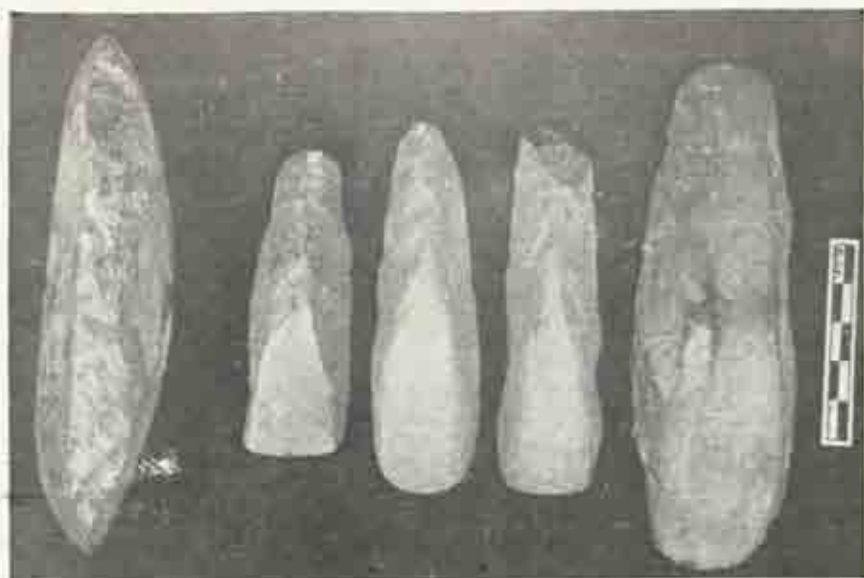
A view of excavation of the Neolithic site at Polakonda.



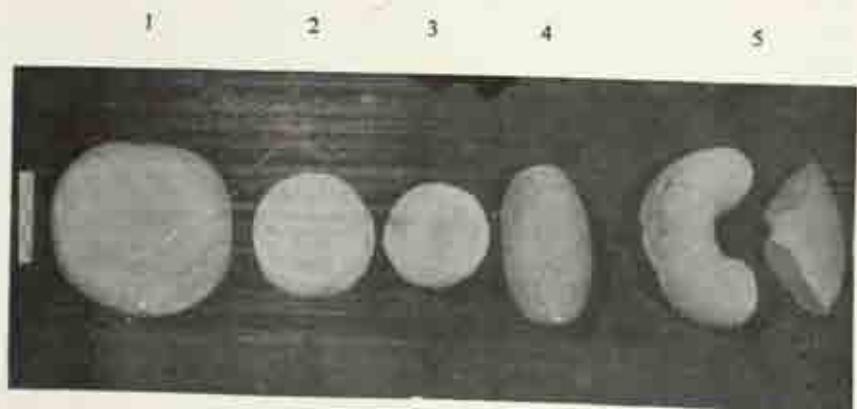
A Neolithic Stone-axe from Peddabankur : two views



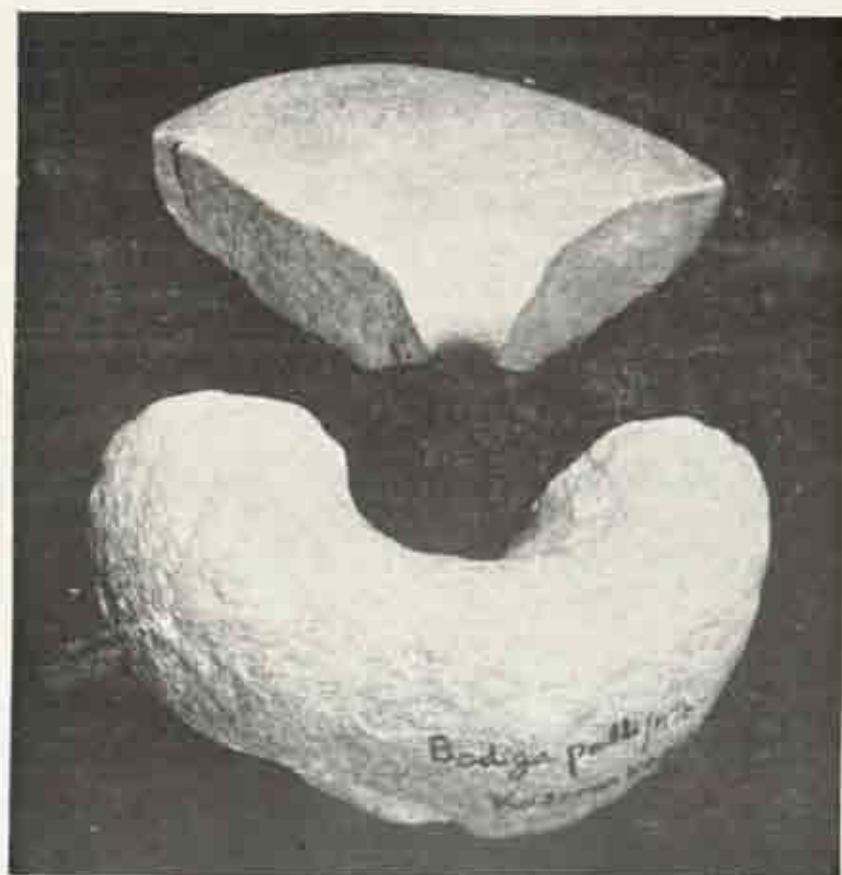
Neolithic implements from Polakonda, Budigapalli, Peddabankur, etc.



Neolithic Shoe-last-celt shown in two views at right and left extremes. The middle 3 tools are picks, Peddabankur

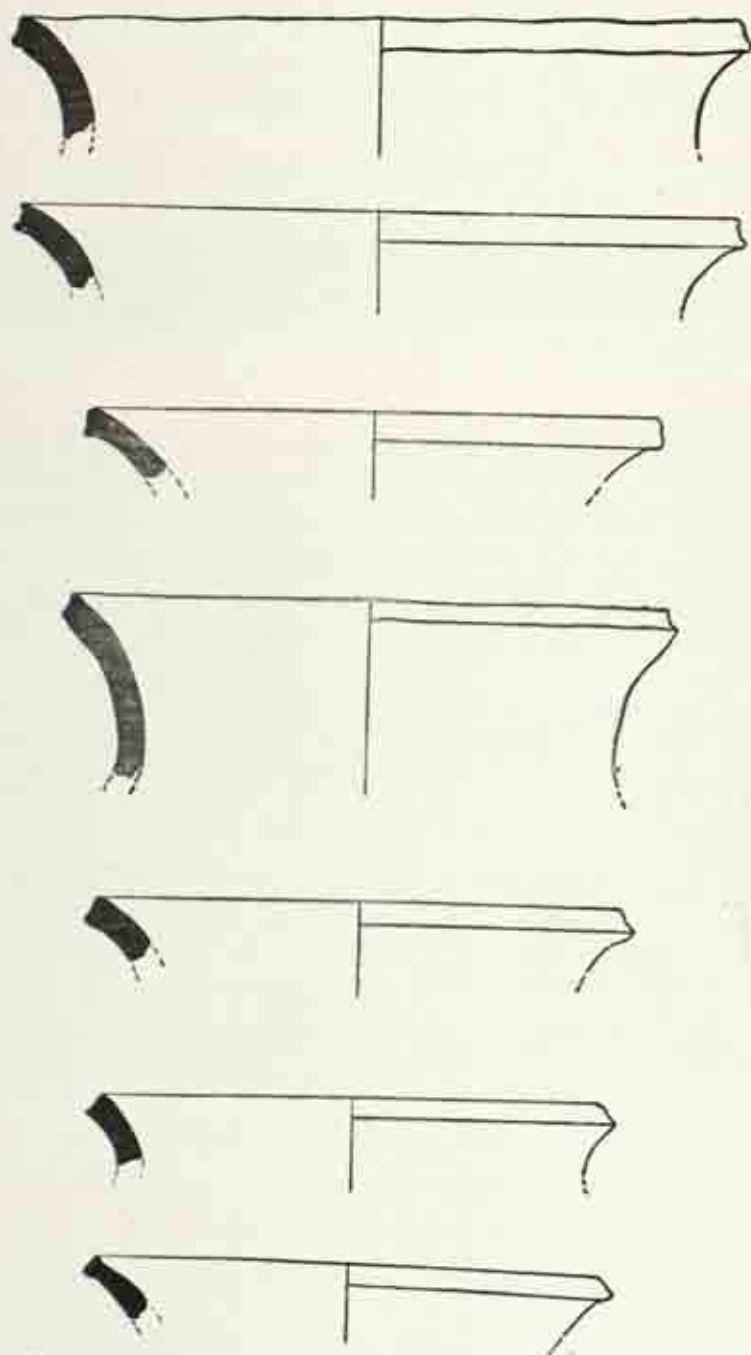


Neolithic sling-stones, rubbers, dabber and ring-stone.



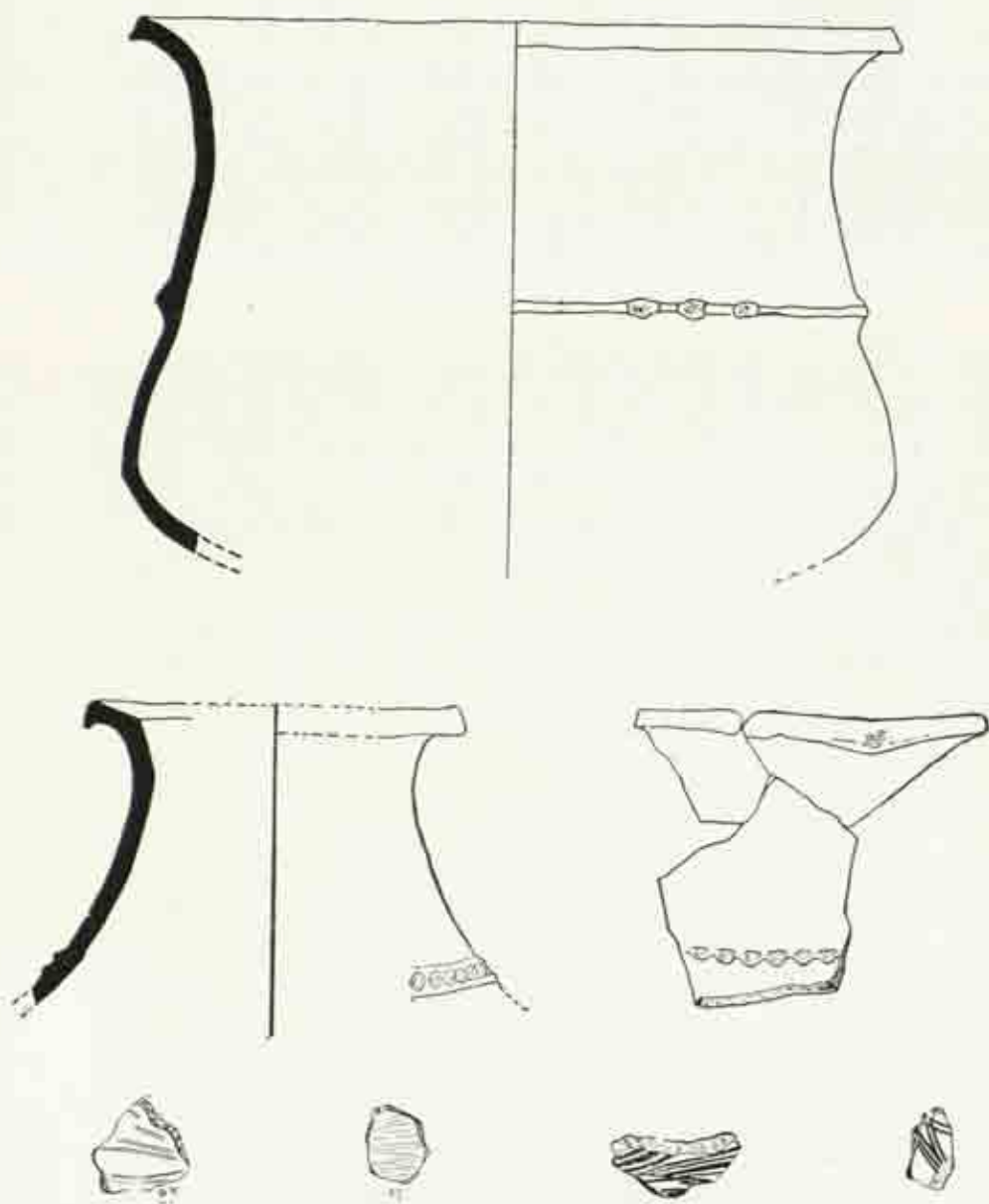
Neolithic ring-stone from Budigapalli, Karimnagar district.

Figure 1 (a)



Neolithic Pottery from Polakonda.

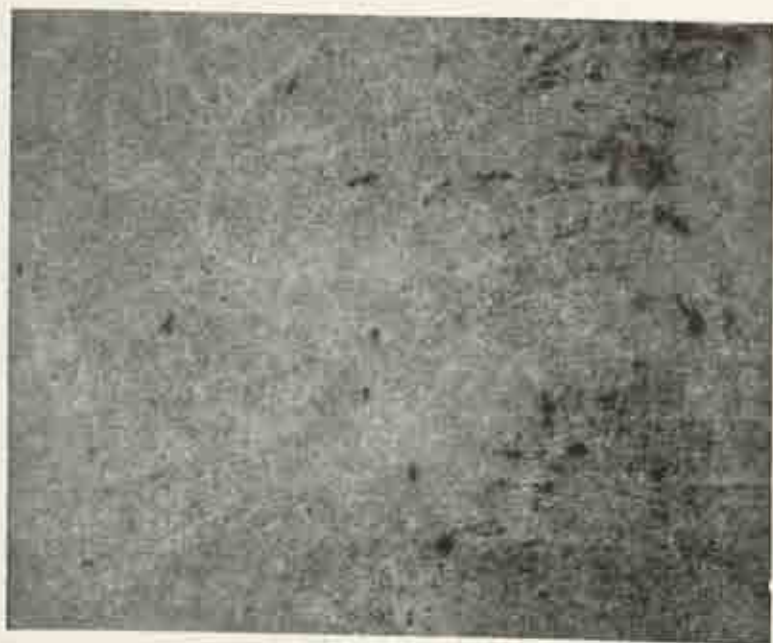
Figure 1 (b)



Neolithic Pottery from Polakonda.



11. Red ochre rock-painting from Regonda.



12. Red ochre painting found in a rock-shelter at Regonda,
Karimnagar District.



13 (a). Rock-paintings at Kokapeta, near Hyderabad.



13 (b). Rock-painting in the shape of a spiral at Kokapeta, near Hyderabad.



Another rock-painting at Kokapeia, near Hyderabad.



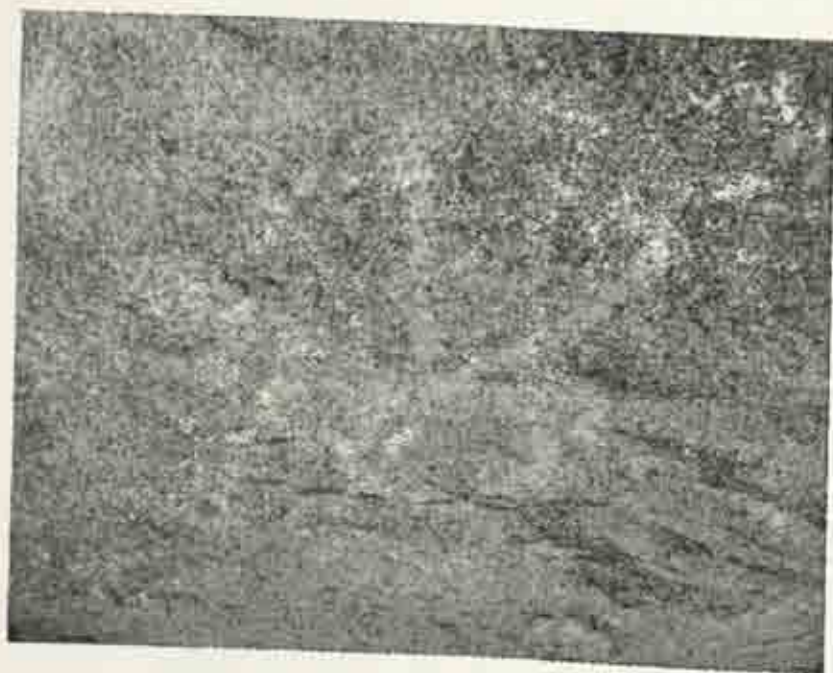
13 (d). Mudumala avenues, locally known as *Niluvurallu*



13 (e). Rock-brusing of Mother Goddess at Mudumala

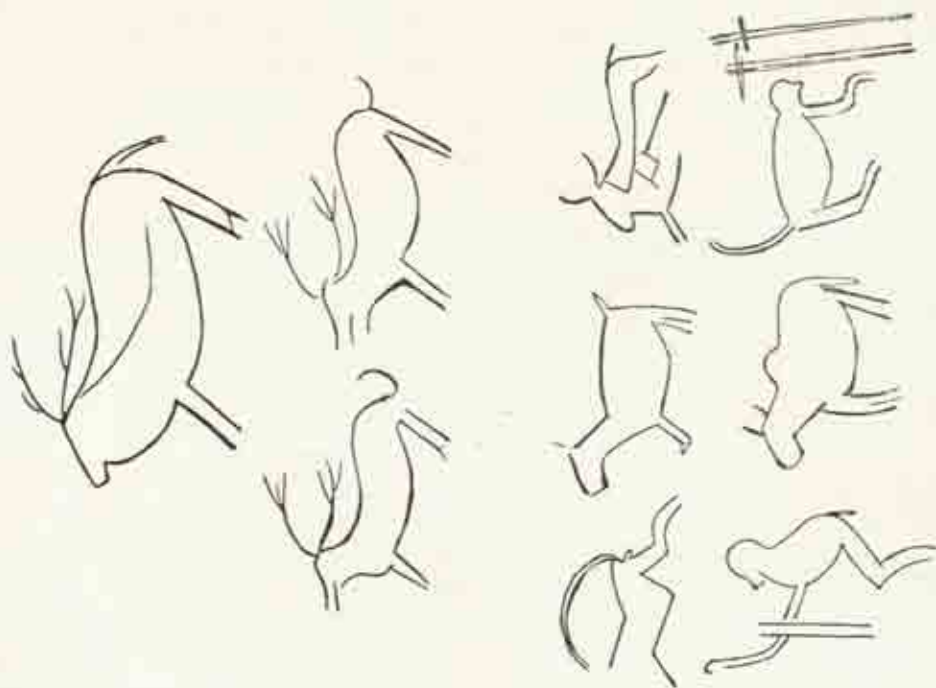


13 (f). Rock-brusing of a bull from Mudumala

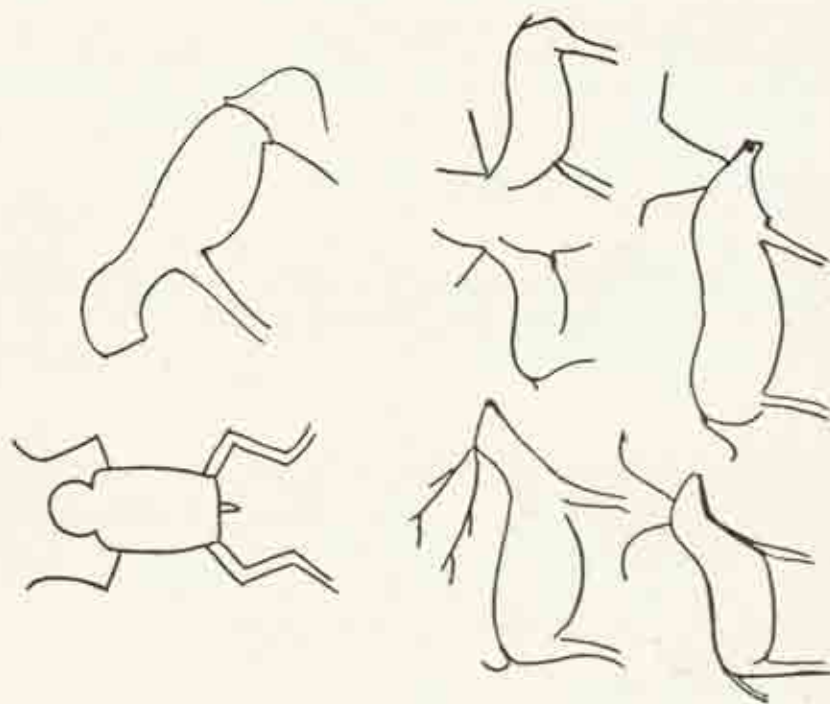


13 (g). Rock-brusing of Nandipada from Mudumala

Figure 2 (a) & (b)

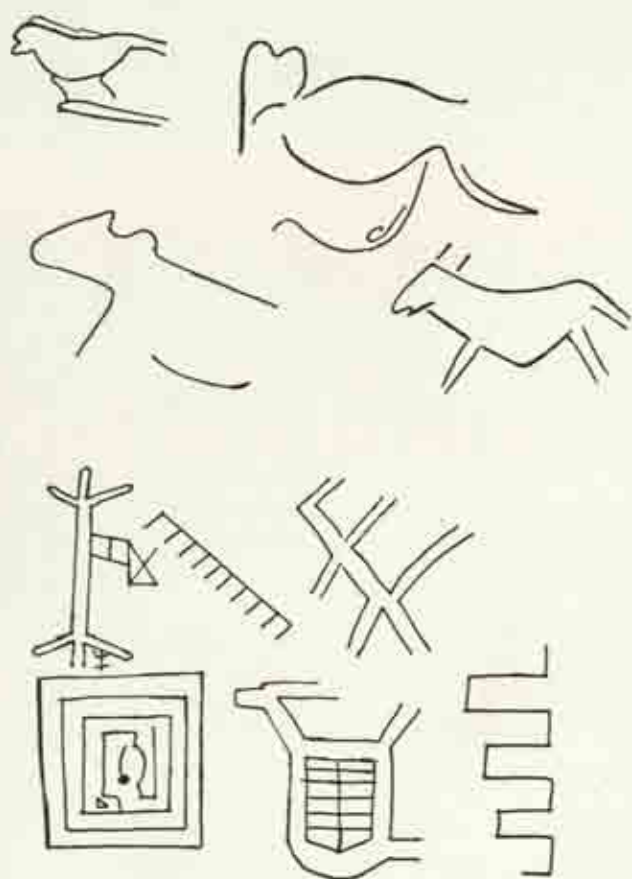


2 (a). Eye-copies of Rock-paintings at Kethavaram



2 (b). Rock-paintings at Kethavaram

Figure 2 (c)



Eye-copies of Rock-paintings at Kethavaram,
Kurnool District.



CHAPTER IV

THE MEGALITHIC PERIOD

Introduction

As it will be too long to describe thousands of Megalithic monuments, scattered all over South India, the author restricted his study to north Telangana, comprising the districts of Nizamabad, Medak, Karimnagar, Nalgonda and Warangal. A few Megalithic sites, in the districts of Hyderabad and Mahboobnagar, which the author personally explored and felt their importance for a closer study, have been dealt upon.

Much work was done in Telangana by some European scholars, such as Wakefield, Hunt, Taylor, etc. But, to our regret, no detailed reports on the systematic work done have been brought out subsequently. The Department of Archaeology and Museums, during the recent years, protected a large number of Megalithic burial sites under the A. P. Ancient and Historical Monuments and Archaeological Sites and Remains Act, 1960 (A.P. Act VII of 1960). Excavations were conducted by the Department at Yeleswaram (1962-65) in the Nalgonda district, Pochampad (1965-66) in the Nizamabad district, Kadambapur (1974-75) in the Karimnagar district, Agiripalli (1976-77) in the Krishna district, Peddamarur, Uppalapadu and Chagatur (1977) in the Mahboobnagar district. Except the preliminary reports, included in the Annual Reports of the Department, no detailed reports could be brought out, due to various reasons.

Distribution Pattern of the Megaliths

In archaeology the term 'megalith' denotes a tomb, built of huge stones, either dressed or undressed. These monuments have evoked the interest of both the scholars and the general public from the inception of antiquarian research from the 16th century onward, although it was not until the middle of 19th century that these rude and rough stone structures were grouped together under the name 'megaliths'.

The Megalith building in South India represents a distinctive cultural phase, which succeeded the primitive Neolithic culture. The succession from the Neolithic to the Megalithic appears to be sudden and peaceful. Whether the new culture entered South India along the

west coast or by sea, it spread rapidly far and wide into the peninsula and became characteristic of the region. Much of the region, in which the monuments are discovered, is marked by granitic gneiss. They are found in groups, varying in number from place to place.

Besides South India, these are found in Makran, Baluchistan, Mesopotamia, Egypt, North Africa, Spain, Brittany to Cornwall, Wales, Northumberland, Scotland and Ireland. In North India the burials are found over an extensive area from Sind in the west to the Assam hills in the east and from Kashmir to Vidarbha.

Distribution Pattern in the Northern India

The distribution pattern of Megalithic remains in Maharashtra shows that they are concentrated mainly in the eastern Vidarbha region, with sporadic occurrences in Khandesh at Ranjala¹ and Tekwada² and the Central Deccan as at Bhosari³ near Poona. Near Khairwara⁴ and Dongargoan⁵ in the Wardha District, Chak Vittalwada and Kukutchinda in the Chanda district, at Mahurjari⁶ 14 km. west of Nagpur and at Junapani⁷ 12 km. from Nagpur, large numbers of stone circles are found. Junapani is considered to be an important Megalithic burial-site, owing to its location at the northern boundary of the Megalithic zone of South India, containing a vast burial complex.

In the district Durg⁸ at Dhanora, which is 90 km. from Raipur in Madhya Pradesh, an extensive Megalithic site, where more than 500 burials are clustered, was located. These monuments have special features and are distinct by themselves. They are apsidal stone enclosures with a massive cap-stone lying flush with the cairn. Similar monuments are found near Amarabad in the Mahabhojnagar district of Andhra Pradesh.

Many dolmenoid cist burials are found near Chunar⁹ on the banks of river Ganga in the Mirzapur district. Large numbers of cairn

1. Gaur, R.C., 1960-61, *JAR*, p.32

2. Deshpande, M.N., 1956-57, *JAR*, pp.18-19

3. Sankalia H.D., 1939-40 *Bulletin of the Deccan College Research Institute, Poona*, p. 178

4. Clark J.G.D., 1955, *Colliers Encyclopaedia*, New York, p.366

5. Srinivasan L.K., 1960-61, *JAR*, p. 24

6. Banerjee, N.R., 58-59, *JAR*, p.21

7. Rivett Carnae, 1879 "Prehistoric Remains in Central India", *Proceedings of the Asiatic Society of Bengal*, pp.1-16

8. Dikshit, M.G., 1956-57, *JAR*, p.35

9. Lemaulier M.P., 1867, *Proceedings of the Asiatic Society of Bengal*, "Cairns near Chunar, Ganges", p. 164.

circles and cist burials are noticed at Kokorai¹⁰ in the Varanasi district of U.P. In Rajasthan these monuments are found near Khera,¹¹ Satmas, Deosa, etc. In Kashmir, near Burzaham, a large group of menhirs is noticed in different states of preservation.

Types of Megalithic Monuments

Glyn Daniel¹² divided the Megalithic monuments of the Western Europe into five types, viz. (a) the Menhirs or the single standing stones, (b) groups of standing stones set in rows or alignment, (c) the circular setting of large stones, (d) the chamber tombs, walled and roofed with Megaliths, and (e) the apsidal temples as at Malta.

In the past, several scholars used different terms for the same type of burials such as cairns, cromlechs, and kistavaens. Meadows Taylor¹³ divided the monuments in South India in three general classes: (1) cromlechs - erections of large slabs of stone open at one side, (2) Kistavaens or structures smaller than the Cromlechs, constructed on the same principle but closed on all sides, and (3) Cairns or small tumuli surrounded with single, double or triple circular rows of large stones.

Krishna Swamy¹⁴ described several types of monuments in the Chengalpat district and classified them into two distinct types. They are broadly styled as (a) the Dolmenoid cist, and (b) the Cairn circle symbolised by the letters D and C.

(a) The Dolmenoid cist is a burial chamber of stone, circumscribed by single or double stone circles. Various forms of Dolmenoid cists were categorised as D1, D2 and D3.

(b) The Cairn circle, symbolised by letter 'C', comprises a stone circle surrounding a Cairn. Beneath the Cairn is found a single urn, multiple urns, or a legged terracotta sarcophagus. The varieties were classified by symbols CU1, CU2, etc.

The same author described a large variety of megalithic and associated monuments in Cochin as follows:

- (1) Dolmenoid cist, with or without port-hole :

10. Sharma G.R., et al, 1962-63, *IAR*, pp.39-41

11. Carlyle, 1971-72, 72-73 "A Tour in Eastern Rajputana-Khera Satmas, Machari and Deosa," *Report of the Archaeological Society of India*, pp.13-15.

12. Daniel G., 1972, *Megaliths in History*, p.7

13. Taylor M., 1862, 1941 (reprint) *Megalithic Tombs and Other Ancient Remains*, pp. 2-7.

14. Krishna Swamy V.D., 1949 "Megalithic Types in South India", *AI*, Vol. 5, pp. 35-45.

- (2) urn-burial, indicated by a cap-stone;
- (3) hood-stone or umbrella-stone or 'kudakallu' consisting of a large dressed hemispherical slab of laterite and flat bottom;
- (4) 'topikallu' or hat-stone, consisting of a dressed circular stone, resting on four quadrilateral clinostatic stones, joining up together into a square at the base on the outside and bevelled in such a way as to close up along the diagonals of the square;
- (5) Menhirs or monolithic rude granitic slabs, standing high above the ground; and
- (6) rock-cut caves, excavated underground in lateritic sub-soil and found in association with the Megaliths as at Porkalam, Ayyal, Chevvanur, Kattakampal, Kandanasseri and Kakkad, etc.

K.R. Srinivasan¹⁵ and N.R. Banarjee have classified the monuments of the Chengalpat district as (1) Cairn circles, (2) Dolmenoid cists, made of dressed slabs of stone and covered by a cap-stone, (3) Dolmenoid cist of rough unhewn boulders, (4) Dolmenoid cist, lying flush with a heap of Cairn, and (5) barrows or Cairn-mounds marked by quartzite.

Gururaja Rao¹⁶ has classified the burials as (1) rock-cut caves, (2) hood-stones, (3) pit-burials, (4) Menhirs, alignments and avenues, (5) Dolmenoid cists, (6) Cairn circles, (7) stone circles, and (8) barrows.

Distribution Pattern in Andhra Pradesh : AMARABAD

In the course of exploration by the author around Amarabad, he discovered a huge complex of dolmens near Rayalagandi, on the road to Padara from Amarabad. This complex is situated on a granitic outcrop extending over an area of more than 300 sq. m. A nullah, locally known as Manda Vagu, bisects the complex. On the north about 200 m. away is Rayalagandi, a hiatus, between the hills. On one of the hills is a temple, dedicated to Channakesava, constructed during the mediaeval period.

The area at the foot of the hills is now under dry cultivation, in which a few nullahs, originating from the hills, flow towards south and merge into the Manda Vagu. In the beds of these nullahs are noticed many Palaeolithic tools, such as hand-axes, cleavers and choppers of Late Acheulian, coeval with Middle Palaeolithic flake industry.

15. Srinivasan K.R. and Banarjee N. R., 1953, *Survey of South Indian Megaliths*, *AI. Vol. 9*, pp.103-115.

16. Gururaja Rao, B.K., 1972, *Megalithic Culture in South India*, pp. 239

DOLMENS [Plates 14 (a) and (b)]:

There are about 20 to 25 dolmens in the complex with intervening space of 10 to 15 m. Dry masonry walls were constructed by piling-up of flat cut slabs, about 40 cm. wide and 80 cm. long and 15 cm. thick. The roof was covered by a roughly circular or rectangular granite slab with a thickness of 15 to 20 cm. The height of the walls below the roof slab never exceeded 1 m. The plan of the room, enclosed by the wall, is sometimes apsidal and sometimes roughly rectangular. Outside the walls a filling of Cairn or small rubble was packed upto the roofing slab to make the room cosy and for protection from reptiles, etc. A single entrance, always facing north, with an average width of 60 to 80 cm. has a threshold slab of about 10 cm. higher than outside surface as if to obstruct reptiles entering the room. It is rather difficult to assign these dolmens to any particular period. The flooring, consisting of bed-rock, is without any possibility of excavation.

Dolmens of this type are also noticed at Tumas¹⁷ in Egypt, Dhanora¹⁸ in the Durg district of Madhya Pradesh, and Palani hills¹⁹ in the Coimbatore district of Tamilnadu, where the pits inside these dolmens consisted of a few bits of bones, beads, glass bangles, but without any pottery. One dolmen at Dhanora contained a copper vessel of the late Neolithic or Chalcolithic period.

GONDIMALLA

The village is about 6 km. from Alampur in the same taluk in the Mahboobnagar district and in between the rivers Tungabhadra and Krishna. The doab, between the two rivers from Alampur to Sangameswaram, is studded with prehistoric and historical sites. Middle stone age and Neolithic stone tools are noticed at many places. Due to the periodic flooding of the rivers no chipping floors of the stone ages were noticed.

Gondimalla is a small hamlet with an extensive Megalithic burial complex. One group is situated over the limestone formations, abutting river Krishna, which may be termed as Site-I. Site-II is about a km. away from the village in between Gondimalla and Uppalapadu. Site-III nestles on the slopes of the hills, spreading over the bank of river Tungabhadra.

17. *JLN*, 1963, "Indian Expedition at Afyeh and Tumas," pp. 579-81.

18. Childe V.G., 1948, "Megaliths," *AI*, Vol. 4, pp. 5-13

19. Ren A., "Some Prehistoric Burial Places in Southern India," *Journal of the Asiatic Society of Bengal*, Vol. 57, pp. 48-71.

The Megalithic types found here are similar to those found in Raichur, Bijapur, Dharwar, Bellari, Bidar and Belgaum districts of north Karnataka region.

The district of Mahboobnagar is mostly covered by archeans, the oldest of the geological formations. The Purana sedimentary rocks are found along the bank of river Tungabhadra, which consist of the Cuddapah and Kurnool formations. The Cuddapah rocks extend from Kolhapur-Somasila area eastwards and upto the eastern boundary of the district. The Kurnool formations, which begin roughly west of Kolhapur, extend westward into the Alampur taluk and beyond, upto Sangameswaram. These formations rest on granites at plain level. Besides, Banaganapalli type of basal conglomerates abound in this region. These conglomerates consist of quartz pebbles with feldspar matrix cherts and jaspery fragments derived from the Cuddapah rock. The soils of the area are black cotton, red and calcareous loam.

Burials [Plates 15 and 16] :

Site-I : This is a cist complex situated on the slopy shale formations on the right bank of river Krishna.

Cist-I : The plan of the cist is an exact square with orthostats, made of shale slabs planted in an anti-clockwise Swastika pattern. The inner space measured 1.50×1.50 m. with a 65 cm. diameter port-hole opening towards south onto a passage, vertically lined with shale slab. The passage is 2 m. long and 50 cm. broad. The circle enclosing the cist with a diameter of 7 m. is a dry circular wall of piled shale slabs.

Cist - II : It is a huge cist measuring 2.00×2.25 m. with a port-hole carved in the southern orthostat leading to a passage chamber (150×60 cm.). The port-hole was closed with a single slab. The total length of the northern orthostat is 2.80 m. with a thickness of 10 cm. and a present height of 90 cm. The cist is enclosed by a circular dry wall of shale slabs and provided with vertically planted casing slabs as in the case of a Buddhist stupa.

Most of the burials in this complex are passage graves and may belong to the Konnur group²⁰ of North Karnataka. Some of the burials have passages narrowing towards south. Another notable feature is that the burials are found in rough alignments.

Site - II : This site extends to more than 200 sq. m. and consists of nearly 100 burials, over rocky barren slopes, studded with conglome-

20. Sundara, 1975, *Early Chamber Tombs of South India*, p.17.

rates and quartz. All the burials are cists and none of the tombs now retains a cap-stone. (Plate 16)

Cist - I : Instead of a boulder circle, the cist is encircled by a double circle of horizontally placed shale slabs; each is roughly wedge-shaped and rounded at the outer end. The diameter of the inner circle is 3.80 m. and that of the outer 4.70 m. with a gap of 45 cm. between the two. The cist consists of 4 vertically planted shale slabs to form a perfect square of 1.95 sq.m. The orthostats were arranged in an anti-clockwise Swastika pattern. A 68 cm. diameter port-hole is found in the eastern wall opening onto a passage. The passage is 1.10 m. long and lined with vertical shale slabs which are at lower level than the cist and provided with 40 cm. door at the eastern end. The cist was filled-up with small rubble and broken shale slabs.

Cist - II : This is also provided with a double circle of horizontally paved slabs. The outer circle measured 5 m. in diameter and the inner circle 3.30 m. The cist was erected with shale slabs planted on edge in anti-clockwise pattern. It is rectangular in plan and measures 1.85 × 1.38 m. A 45 cm. diameter port-hole is carved in the eastern orthostat. No passage chamber is provided.

Cist - III : It is an oblong cist (1.75 × 0.50 m.) in the north-south direction. Neither an enclosing circle nor a packing of cairn is noticed.

Site - III : This complex is situated on the sloping plains of the hills on the bank of river Tungabhadra. Most of the burials have circles of conglomerate stone boulders, available nearby. The burials are mostly pit circles, occasionally interspersed with oblong cists.

Burial - 1 : This is provided with a circle of 19 boulders of conglomerate stone with an inner diameter of 5.80 m. There is a tight cairn packing of shale chips, sandstone and conglomerates.

Burial - 2 : This is a small burial with a circle of 16 closely planted boulders with a diameter of 3.25 m. There is a tight cairn packing of shale slab and other types of stones in the middle.

Burial - 3 : It is an interesting burial with a circle of 36 boulders. The circle has a projection towards north in the shape of an *ayaka* platform of a stupa. The projection is 2.80 m. broad and 1.15 m. long. The diameter of the circle is 7.65 m. The cairn filling in the middle consisted of rubble and shale. A curvaceous alignment of boulders extends from southern end of the boulder circle, possibly enclosing an adjacent platform.

Burial - 4 : This is enclosed by a double circle of conglomerate boulders with an oblong cist in the middle. The southern orthostat appears like a head-stone and is higher than the other three.

Burial - 5 : This is enclosed by a circle of 19 huge oblong boulders. In the middle of the circle is an oblong cist (1.80×1.10 m.). A port-hole is at the bottom of the southern orthostat opening onto a passage (1.10×0.60 m.).

It is interesting to note that the Megalithic burials at Gondimalla have architectural similarities with the Buddhist stupas. The circle of horizontally paved shale slabs around some of the cists is similar to the one found around the Buddhist stupa at Kesanapalli.²¹ The circular dry wall of horizontally piled-up shale slabs around the cist and vertically planted casing slab for the dry wall is another similarity. Thirdly the projections at the cardinal points in the shape of *ayaka* platforms²² is another feature. The construction of *ayaka* platforms at the four cardinal directions is a characteristic feature of Andhra stupas.

MUDUMALA :

A large number of stone circles, huge stone alignments were previously reported along the north bank of river Krishna from Thengady²³. From the Krishna-Bhima confluence to beyond Mudumala and Angunda, numerous stone circles were noticed to the west of Thengady, south of Gudabelur, one mile north of Muraridoddi. The surrounding area is associated with stone alignments, measuring 14 to 16 ft. high and 6 to 11 feet in girth; there were 31 of them when Krishna Murthi visited.

Later Rama Krishna Rao²⁴ (1977) reported that at Mudumala in the Maktal taluq of Mahboobnagar district, the alignments are locally known as 'Banthirallu' (ball-like stones) and 'Niluvurallu' (standing stones), which consist of blocks of stone of 14 to 16 feet in height, without any marks of chisel or drill. They must have been quarried by means of fire-setting. These huge blocks of stone are arranged in a diagonal fashion i.e. the stones of even numbered rows are set in the centre of the square. In other words, if a line is drawn from one row to another a beautiful criss-cross pattern is found. The even numbered rows seem to contain 6 stones while the odd numbered rows contain 7 stones. Many of these stones are not intact. There are altogether 7 rows covering an approximate area of about 19 sq. m. Many of the stones have collapsed. [Plate 13 (d)]

21. Khan, A.W., 1969, *A Monograph on an Early Buddhist Stupa at Kesanapalli*, Pl. 1 to 4, pp. 2, 3, & 4

22. Debala Mitra., 1971, *Buddhist Monuments*, p.26

23. Krishna Murty, K., 1941, "Megaliths in Mahboobnagar and Gulbarga Districts," *Journal of the Hyderabad Geological Society*, Vol. IV, part I, pp. 85-87.

24. Ramakrishna Rao M. personal communication.

Rock Brusings [Plates 13 (e) & (f)]

On the south-west of the village are found some rock brusings, incised over huge boulders. These consist of a crudely carved humped bull with an upraised tail, a human figure possibly of a female (Mother Goddess), with outstretched and upraised hands and outstretched legs. Another figure is a curvilinear trident over a circle. In another similar figure the side prongs are oblique and the middle one which is longer bisects the circle. In the third such figure the side prongs are oblique and the middle prong appears like an arrow-head and bisects the ovoid circle below.

CHAGATUR [Plate 17 (a) and (b)]

About a kilometre west of the village of Chagatur, there is a cluster of Megalithic port-hole cist burials with passage chambers. Some of them have double circles of horizontally paved shale slabs. One of the recently excavated cist burials²⁵ has a passage chamber to the south, and was divided into two compartments in the north-south axis. These compartments were further sub-divided by another set of partition walls. In the northern half of both the compartments human-sized stone benches, supported by vertical slabs, were installed. The cist and the passage chambers in other burials usually have a single port-hole, but this particular burial has two port-holes in the southern slab, one at the upper level and the other at the lower, corresponding to the height of the bench. Evidently, the stone benches were used for exposing the dead bodies until the flesh, etc. were consumed by carrion eaters and natural agencies. This view is strengthened by the elaborate arrangement of the cist, which has, besides a usual slab circle, and 30 x 30 m. enclosure wall with a single entrance in the south. Similar feature was noticed at Valigonda²⁶ Megalithic burials, where a dry masonry enclosure (48 x 27 m.) with a height of 0.60 m. was noticed.

Prasad (1978) reports that in all the four quadrants the fragmentary skeletal remains and typical Megalithic red ware sherds were collected. Besides, four huge vertical stones, planted as memorial columns, were noticed at the cardinal points. A very significant feature of this burial is a rock brusing over a shale slab, depicting a standing human figure with hands raised in *anjali* and worshipping a pair of footprints.

The dressed stone circle, stone columns at the cardinal points and the worship of the foot prints may have a bearing on the evolution of the Buddhist stupa.

25. Prasad N.R.V., 1978, an unpublished report.

26. Edt. Yazdani, G., 1939-40, ARADN, p. 44

PEDDAMARUR

Peddamarur²⁷ is a small village in the Kolhapur taluk of Mahboobnagar district and situated on the left bank of river Krishna. As the village and its surroundings come under submergence on completion of the Srisailem Hydro-Electric Project, major excavations have been conducted in the year 1977-79. The habitation site of the proto and early historical period, about 10 hectares in extent, lies on the south-west of the village and roughly half a kilometre away. Two groups of Megalithic burials are also found at Peddamarur; the first one towards north of the village, about a kilometre away, and the second about 3 kilometres south-west of the village and near river Krishna. Excavations were concentrated at the second group of the Megalithic burials and over the habitation site.

Habitation Mound of the Megalithic Period

But for a solitary potin coin of Satakarni III the excavation at the historical site has not yielded any datable object. For arriving at an absolute date for the site we have solely to depend upon the pottery types, beads and other objects, recovered from the excavation. No coins, either the punch-marked or any other variety, are attested to from the earlier levels.

Altogether six occupational levels are recorded of which the top two are marked by the structural construction, with locally quarried shale slab. The above mentioned coin may help us to date the late levels to the Satavahana period. From the earliest occupation level upto the end of the fourth, no permanent structures are evidenced, but for post-holes and paved floors. Yet, there is a profuse occurrence of pottery and other cultural objects from all levels.

A comparative study of the objects, recovered from the habitation site and the Megalithic burials, both about 3 km. apart, may help us to discern the nature of habitation. Some of the pottery types from the habitation are exactly similar to those found in the Megalithic burials. The black polished pottery, which is very scanty but for a few ear-spools in the Satavahana levels, is ubiquitous both in the earlier habitation level as well as in the Megalithic burials. All the black ware and black and red ware dishes, some of which with typical ledged and out-turned lips, and the coarse-red hat-shaped lids are common. The barrel-shaped hexagonal crystal beads are found both in the habitation and the burials. Similar beads are reported from Prakash²⁸ in the iron age context.

27. Krishna Sastry, V.V., 1978, ARDA & MAP, under publication.

28. Thapar B.K., 1964-65, "Prakash, 1955-A Chalcolithic Site in the Tapti Valley," *AI*, Vol. 20-21, fig.37, No. 21, p.113

The carnelian etched spheroid beads, with circles and dots in the middle, and the long barrel circular beads with chevrons in between concentric lines, found in the earlier levels, disappeared in the Satavahana levels. These types have been reported from Sanur²⁹, Maski³⁰ Sanganakallu³¹ and Porkalam³².

In the light of the above discussion it may now be possible to arrive at a reasonable time-scale of the habitation site.

Period one represented by four occupational levels from the earliest to the end of fourth, is coeval with the Megalithic cist burials. Period two, overlapping the fourth upto the end of the sixth, is coeval with the Satavahana period.

Six occupational levels were traced. Post-holes, noticed in some trenches, may indicate the nature of residential houses during the earliest habitation. The houses must have had mud walls, covered by some thatched roof and supported on wooden poles. The second level, comprising layers 7 and 6, was also marked by post-holes. The flooring inside the houses, as in the earlier level, appeared to be of rammed earth, a thin line of which was noticed. The third level was marked by floors paved with shale slabs and two hearths of burnt clay. A tan ware deep bowl was noticed in the vicinity of these hearths. In the second kitchen a platform, paved with shale slabs, was found behind the hearth, possibly for keeping vessels after cooking. About a metre east of the hearth was a huge red ware storage jar. Lest it may break in the course of usage it was buried half into the ground. The flooring of the fourth level was rammed with small rubble and paved with shale slabs.

Level five, contemporary with the Satavahana times, was marked by profuse usage of shale stone for the construction. An enclosure wall, noticed in level-V, was laid directly over the ground without foundation.

The pottery from the Megalithic levels included black polished dishes, tan ware (dark brown) bowls, sometimes decorated with concentric lines over the shoulder. The collection also included hat-shaped lids, which have exact proto-types in Megs. I and II. The pottery also consisted of red polished, black and red and black polished wares. There are also a few sherds of buff ware. The common types are vases with beaded and flanged rims, sometimes grooved at the top. Most of the deep bowls

29. Banarjee N.R. and Soundararajan K.V., 1959, "Sanur-1950 and 52", pp. 4-44, A Megalithic Site in the district Chengalput" *AI*, Vol. 15, p. 15

30. Thapar B.K., 1954, "A 39-40 Chalcolithic Site of the Southern Decan," *AI*, Vol. 13, p. 108

31. Subba Rao B., BDCRI, 834, pl. 3, fig. 3.

32. Thapar B.K., 1952, "Porkalam, 1948," Excavation of a Megalithic Urn Burial, *AI*, Vol. 8, pp. 14-15

are red polished, some of which have soot stains. Besides the black and red ware dishes, there are black polished and black and tan ware dishes. Dark brown or tan ware jars were common during the Megalithic period. Another common type is a narrow-necked vase with a flanged rim, possibly used as a lota.

Antiquities :

The collection of antiquities from the Megalithic levels of the habitation included beads of terracotta, horn, jasper, etched carnelian, and shell. The terracotta beads are tabloid and sometimes decorated with concentric circles. Jasper beads are mainly spherical and of dark-green and dark-brown hues. The etched carnelian and white painted beads were decorated with double rows of chevrons, enclosed by double concentric lines on either side. There are also beads with circles and dots. Mention may be made of 3 types of quartz crystal beads : one truncated barrel with hexagonal, the other pyramidal-hexagonal with a flat base and double vertical perforation at the base. The cutting of the second type of bead exactly resembles that of a diamond. The third type is a simple spherical. There is also a solitary steatite tabloid bead. The above noted crystal and tabloid steatite beads are usually found in the Chalcolithic levels as well.

Iron objects are very few, which included an arrow-head, a socketed spear-head, a sickle and a lamp.

Megalithic Burials

Group - I

Two groups of Megalithic burials were discovered at Peddamarur. The first group is towards the north of the village, about two kilometres away, and lying by the side of a cart track, leading to Chinnammabavi village. The burials, all port-hole cists with passage chambers, were erected over a high mound. Presently there are only six burials, the remaining already disturbed. The cists were constructed over made-up mounds, enclosed by circles of vertically planted slabs. The intervening space was reinforced by circular walls of dry masonry.

One port-hole cist is exactly square in plan and measured 2.45×2.45 metres. It has an oblong passage chamber (0.50×1.75 metres) towards south. The diameter of the enclosing circle is 8 m. The space between the cist chamber and the circle measures 2.85 m.

Group - II :

About 3 km. south-east of the village and one km. north of river Krishna, lies the second group of Megalithic burials over a rocky

mound, scattered thickly with haematitic quartzite rubble. Presently there are 38 burials, most of them being multiple-chambered cists, of which 20 are squarish or rectangular, 15 oblong single-chambered, and 3 pit circles. Out of this group four burials were excavated.

Meg. I (Plate 18) :

This is a triple-chambered cist burial of shale slabs, with a port-hole (0.63 metres) in the southern wall slab, opening into an oblong passage chamber towards south (1.70 \times 1.30 metres). No cap-stone is noticed. The cist has a circle of horizontally placed slabs of large and medium size. The outer edges of the slabs were dressed in a semicircular shape. The intervening space and the cist were filled-up with shale slab.

As already noted the cist was transepted into three chambers in the north-south orientation; the central chamber being bigger, the other two chambers on either side, with similar measurements, have port-holes at the floor level, providing access from chamber to chamber.

Chamber I, measuring 2.35 \times 0.65 metres, was closely packed with small shale slabs, haematitic quartzite pieces and red clay upto a depth of 35 cm. Smaller shale chips and rubble were used down to the level of funerary deposits. The pottery and skeletal remains were badly crushed due to the heavy weight of the filling. No skull is noticed except a few charred bones inside urns. The pottery consisted of coarse red jars, sporadically incised with oblique strokes. There are more than 40 pots of black and red, all black, red and coarse red. The types included hat-shaped lids of coarse red ware, vases of black ware and red ware with thickened and out-turned rims. Some of these black ware pots have thickened rims and perforations above the shoulder on the four sides.

Some red ware pots were decorated with double rows of pinched design and oblique incisions below the concentric bands. There is also an all black ware miniature bowl with concave body and sharp carination at the waist, tending to a saggar base. The hat-shaped lids sometimes have thickened and flanged rims and sometimes rolled and slightly out-turned. Another interesting feature is the occurrence of black ware funnel-shaped lids, sometimes with a ledged rim and a knobbed terminal at the top.

Iron objects are scanty but for a small knife in the shape of a sickle, which is still in vogue as used by shepherds for cutting small twigs. The other object is an iron ring or blade with ends bent forward to overlap in the shape of a spiral.

There are two beads of quartz crystal: one bigger and the other smaller, and both are barrel-shaped, truncated and hexagonal in cross-section. Similar beads are reported in Prakash excavations in iron age context.

In chamber II, a terracotta sarcophagus was noticed, adjacent to the eastern wall, a big fragment of which was lying near the western wall. Inside the sarcophagus only a few splinters of bones were noticed. The pottery consisted of hat-shaped lids, all black ware dishes and red ware vases, etc. Some of the red ware pots contained fragments of calcined skull bones.

There are more than 25 pots inside the chamber, which included a red and black ware deep bowl, red at the top and black at the bottom. It appears the bowl was straight-fired by piling up bowls one over the other.

In chambers I and II after removing the contents the floor slab was also removed. In the middle of the chambers it was noticed that small pits were scooped into the bed-rock for depositing funerary vases, some of which containing human bones. The pottery included squattish all black ware ring stands, a red ware pot with elongated neck and tapering body, another small black ware pot, a black and red ware dish and a black ware pot in the shape of a 'bottle gourd'. In order to keep the contents intact the gaps between the pots inside the pit were plugged with fine earth. The base of the floor slab was also rammed with fine earth, so that it would not exert pressure over the contents of the pit underneath.

In chamber III the funerary deposits were noticed at a depth of 1.33 metres, consisting of a large number of pots and human bones, most of which are unidentifiable as they were crushed due to the weight of top-filling. The pottery consisted of red ware, black and red ware, and coarse red wares. Some of the pots were placed over the human bones.

Meg. II [Plate 19 (a) and (b)]:

This is an intact burial with shale slabs, erected in an anti-clock-wise Swastika pattern, with a port-hole in the south wall leading to a passage chamber. The port-hole is 44 cm. in diameter, carved exactly in the middle of the southern wall slab and slightly above the floor for enabling free access to both the compartments. The door slab of the port-hole slid down and found in the middle of the passage chamber.

The cist was divided into two compartments by a low partition slab, which was 20 cm. high and tightly inserted into the cleavage between the floor slabs of the two compartments. Besides some crushed skulls, bones, and pottery, there was also a sarcophagus of terracotta, with six legs in two rows and decorated with an applique band of finger impressions below the rim.

The rim of the sarcophagus was luted with a terracotta figurine, possibly of a buffalo, with a single sturdy horn with a backward sweep, as it was intended to be luted at the place of the second horn. The head is slightly turned aside. The sarcophagus was covered with a convex lid, now crushed and contained a few human bones in a very fragile condition, thickly embedded inside red clay.

In the same chamber one crushed skull was placed near the port-hole, slightly tilted towards west. A few long bones were found towards north of the skull. A second fragmentary skull was found further north with longer bones in the north-south orientation. A maxilla, with damaged teeth, was found at some distance from the skull. Two iron rings, constituting the other finds was found closely towards south of sarcophagus. About 15 cm. away, fragments of a third skull, with some longer bones, were placed in the north-south direction. A fourth skull, along with a few crushed bones, was at the south-east corner of the cist with an iron spatula, lying close by. An iron cable-type nail, riveted to a copper ring, was found in between the sarcophagus and the partition slab. Most of the bigger pots, with lids, were placed adjacent to the walls and the smaller ones near the bones. A earinated red ware pot, with lid, was at the north-east corner. It may be noted that, at every corner of the cist, pots were deposited possibly as offerings to the gods, presiding over the quarters.

It appears that the cist was re-used for a number of times. Initially a soft bed of earth was spread over the floor slab to a thickness of 5 to 6 cm. Then the skeletal remains and offerings were deposited. Another bed of earth covered the earlier remains for interring a second set of human relics. After the entire space inside the cist was filled up the port-hole was opened again and without entering into it, one more skull and a few collected bones were deposited near the port-hole from out-side. Even the cist chamber sometimes was used for interring the remains. [79 (b)]

Chamber-II (Plate 20) :

The western chamber contained a single skull, separately inserted with three long bones and two terracotta sarcophagi, besides an array of pottery. The red ware sarcophagus, placed at the south-west of the cist, is pentagonal in cross-section and truncated-barrel in shape. It was hand-made and tapers towards both ends. A squarish door (20 × 17 cm.) is slightly above the base and has a door slab, lying outside. The exterior of the sarcophagus was finely polished. It contained a few fragments of charred skull bones in association with other crushed bones over a bed of red clay.

The second sarcophagus (61 × 40 cm.) is fusiform and pointed at both ends. It has a door in the middle with a closing slab, now

lying crushed inside along with the fragments of the sarcophagus and the bones. It was decorated with double rows of multiple concentric lines at both the tapering ends. It contained a few fragmentary bones and a crushed skull pertaining to a child.

Meg. III [Plate 21 (a) and (b)] :

This is a single chambered cist burial (2.30×1.85 metres), lying to the north-east of the cemetery. It is Swastika in plan, with a passage towards south and has a circle of horizontally placed slabs. The passage (1.30×1.05 m.) is slightly towards east of the middle. A port-hole, 44 cm. in diameter, is in the middle of the southern wall with a door slab (60×70 cm.). The cist was securely sealed with small rubble and shale to a depth of 1.20 m., wherein the skeletal remains were noticed. No floor slab was provided. The skeletal remains being deposited directly over the bed-rock spread with a thin bed of ashy silt. In all 8 skulls were found at various places inside the cist at the same level. Three skulls were close by the port-hole and no single skull was intact. At times the occipital bones were dislodged and crushed down into the mandible. The general pattern of arrangement consisted of a skull with a few longer bones on either side and miniature pots nearby. All the bigger pots were placed adjacent to the walls.

After the entire space inside the main cist was filled in with several funerary deposits the passage chamber was utilised for a 9th deposit, consisting of a skull, long bones and pottery [Plate 21 (t)].

Apart from the commonly occurring iron objects, such as chisel, knife, etc. it is quite interesting to note that one triangular blade of iron, which was possibly used as an arrow-head, was also found.

Meg. IV (Plate 22) :

This is a pit burial with a passage to the south and enclosed by a double circle of disintegrated shale rock. The oblong passage chamber (1.87×0.53 m.) of shale slabs has a door slab to the north, now slid down into the pit. The skeletal remains were noticed at a depth of 1.80 m. lying over shale bed-rock. The skull was placed towards north of the pit, lying on the left side and facing east. The mandible was dislodged. The other bones, such as femur, tibia, radius, ulna, ribs and a part of the pelvic, were much crushed. The size and the length of the bones indicate a tall person. The leg bones were placed one over the other and the hand bones, the radius and ulna, were on the right of the skull.

Peculiarities

In many aspects the burial is unique. The skeletal remains were interred in a pit, rather than in a cist, but with a passage chamber towards

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south. A door was provided on the north of the passage chamber, which usually serves as door slab to the port-hole of a cist burial. Instead of lining the pit with slabs to build a cist it was lined with calcereous boulders. The other variation was the presence of a double circle of boulders instead of a circle of horizontally placed slabs. Pottery was also very scanty but for a much damaged black miniature pot. In view of this, it is likely that the burial may be the arch-type of cist burials with passages.

JONNAWADA (Plate 23)

A very interesting Megalithic site, situated near Jonnawada³³, on the left bank of river Pennar, in the Kovur taluk of Nellore district, was excavated by the Department of Archaeology. The site lies in between the village and a low hillock, standing on a jeepable road leading to the village. The burials are covered by wind-blown river sand to a thickness of 10 cm. to 1 m. Below this is a deposit of morrum, composed of soft laterite, covering the bed-rock.

The burials were carved into the lateritic bed-rock in the shape of a jar with an elongated narrow neck, bulbous body and a flat base. The vertical section appears like an inverted funnel. At the base of the cutting, a sarcophagus was placed invariably on the eastern side of the chamber. Even among the disturbed burials the position of the sarcophagus could be located from the shallow cutting, made for placing it on the eastern side of the floor. The wall adjacent to the chamber of the sarcophagus was also scooped in an oblong oval shape so that the sarcophagus can rest firmly on its base.

There might have been other structural appendages like a stone circle, cap-stone and cairn packing. But it is learnt that the villagers have removed the stones and carried them away.

Burial No. 1 :

The Burial was excavated into the lateritic bed-rock with a diameter of 80 cm. at the neck. The lower edge of the neck where the shoulder takes a wider curve, has a diameter of 90 cm. The total length of the neck is 60 cm. The chamber was cut deeper towards eastern side, where a sarcophagus, consisting of beads, was placed. The other funerary assemblage consisted of bowls of all black and black-and-red ware, with funnel-shaped lids of black ware, big red ware vessels, etc. Neither iron objects nor skeletal remains were noticed. This appears to be a post-cremation burial.

33. Suryanarayana Raju, J., 1976-77, ARDA & M, AP., Hyderabad.

Burial No. 2 :

This burial, lying exactly towards south of the Burial No. 1, was dug out by the villagers. Fragments of a sarcophagus and an iron arrow-head came to light during the excavation. The diameter of the neck is 60 cm. and that of the body is 180 cm.

Burial No. 3 :

This was also disturbed by the villagers, leaving only fragments of sarcophagus, an arrow-head and human teeth. The neck of the burial was very narrow with a diameter of 45 cm. and a total depth of 90 cm.

Similar rock-cut tombs were noticed in Kerala. The rock-cut tombs at Channapparambu³⁴, near Feroke Railway Station, had stone circles, none of which however was to be seen. Each cave tomb has top opening, big enough for an adult to lower himself into the cave, and the top holes were covered on the surface with a granite square slab. The top hole in the form of a hollow cylinder superposed itself on the hollow half sphere which constituted the cave proper.

As in the case of Jonnawada burial the floor was also circular and the wall reached upto the top opening to form a domed vault. Another cave tomb, near Feroke Railway station, had a small rectangular entrance on the north-east, leading on to a rectangular pit, also cut into the rock but open to the sky and provided with a flight of 3 steps.

The tombs at Jonnawada yielded an iron tripod stand, a trisula and a lamp. The tombs at Parambankali³⁵, also in Kerala, yielded a similar iron trident, tripods, daggers and some objects with forked edges.

TENNERU³⁶ (Plate 24)

Tenneru, situated at 23 km. east of Vijayawada, is connected by Vijayawada-Machilipatnam Railway line. On the east of the village there is a Megalithic site in which legged sarcophagi-burials were seen side by side. In all the cases north-south orientation was noticed. Most of the adult burials were noticed in the sarcophagi, having 8 to 12 perforated legs.

Most of the tubs are of matt-red ware. The entire body of the tub was hand-made. In some cases there are decorations of rope design on the exterior of the earthen ware tub and two perforations on the front side.

34. Aliyappan, A., 1933, "Rock-cut Cave Tombs of Feroke, South Malabar", *QJMS* Vol. XXIII, pp. 299-314.

35. Rea A., 1910-11, "Excavation of Prehistoric Caves at Perambankal", *ARASMC*, pp. 10-13.

36. Prasad, N.R.V., 1970-71, *ARDA & M, AP*- under publication.

Salient Features

The excavation of the burials at Tenneru brought to light a new aspect in the method of disposal of the dead. It appears that a regular pot-making industry, turning out these earthenware tubs, was in vogue. This was substantiated by the presence of tubs of standard size made in two halves. In case of shortage of a tub of suitable size for an abnormally tall adult, a gap is seen at the centre which is plugged by placing potsherds. The custom of depositing pottery, such as lid-cum-bowls and tumbler jars, inside the tubs is also common. The largest earthenware tub measured $23.5 \times 4.2 \times 4.2$ cm. with 12 perforated stands, contained the skeleton of an adult in complete articulation. The associated finds consisted of knives, blades, two beads of carnelian, besides a bunch of shell beads.

AGIRIPALLI

Agiripalli, a famous pilgrim centre in the Nuzvid taluk of Krishna district, is about 30 km. from Vijayawada. The village nestles to the south of the hill, Sobhanagiri. At the top of the hill is the famous temple, dedicated to Laxminarasimha. Flights of steps are provided up to the top of the hill.

The hill Sobhanagiri, with an approximate height of 183 m., is of the khondalite rock group. On the western foot of the hill is an extensive Cist burial complex. Most of the burials are devoid of boulder circles. Presently the burials can only be located by the cairn packing, found hither and thither. Many burials have been dug out by the villagers for finding out allegedly hidden treasures.

The entire area is deeply cut by several nullahs, emanating from the hill, exposing a few of the burials. In many burials even the traces of boulder-circles are absent. It is likely that the burials never had any boulder circles due to the non-availability of granite or such rock, in the vicinity.

The burial site is covered by rubble and red soil but the lower reaches of the hill and the extensive plains have a deposit of red alluvium to a thickness of 3 to 4 m.

Burials

The cairn-packing, visible in many burials, kept most of them intact. Three types of burials are noticed in the group, viz.,

- (1) Cist, (2) Sarcophagus, and (3) Urn.

All the burials, so far excavated, are secondary in nature and many of them are post-crematory in nature. A few splinters of calcined bones are found in many cists. The pottery is not prolific. Iron is also scarce.

Cist-I [Plate 25 (a)] :

It is situated about 50 m. from the foot of the hill and oriented in the north-south direction. There was a cairn-packing to a height of 15 cm. around the cist. The longer orthostats of granite measured 1.80 m. Neither the port-holes nor cap-stones were noticed. The smaller orthostats on the north and south were just kept to plug the gap between the longer ones. They were thin and crumbled. The space inside the cist measured 76 cm. broad. The slabs were so arranged as to make the tops slightly tilt inwards to prevent falling back. The crevices between the slabs at the floor level were plugged with rubble. The total height of the longer orthostat (north-south) is 1.15 m. The floor slab, also of granite, was broken due to the pressure of weight from above.

Outside the cist on the north-eastern side, a red globular pot was placed. Inside, at the south-west corner, was placed another globular vase of red ware. Adjoining it was a small pot and a dish.

In the middle of the cist, near the western orthostat, is a small pot with straight sides and carinated at the base. It has a thin red slip and burnished surface. There is a finger-impressed design between two concentric bands over the shoulder. The pot contained red soil and a few calcined bones at the bottom. Nearby, there were four miniature pots; three of them are of red variety, made on slow wheel, with thickened and everted rims. The fourth one is a black and red miniature pot with nail-headed rim. Also there were two lids, the bigger one with a deeply grooved rim and the smaller one with an internally thickened rim.

There is a solitary iron find of doubtful shape, appearing like a lamp, in a much corroded and disintegrated state.

Cist-II [Plate 25 (b)] :

While excavating Cist-I, another cist was noticed at a distance of 1.60 m. towards the west, and at its floor level tightly capped by four rectangular granite slabs. The longer orthostat measured 1.45 m. The northern orthostat, the longest of all, stands to a height of 1.45 m. possibly to serve as head-stone.

The cist contained four skulls, two placed one over the other and lying adjacent to the western wall. Two other skulls were near the eastern slab. In between these two pairs were the longer bones such as femur, tibia and fibula. Another set of bones was found underneath the second pair of skulls.

In the ceramic assemblage was a red ware pot, about 10 cm. in height, with a thickened and slightly everted rim, and a thin pale red slip. The other is an ill-fired black and red ware bowl, with a featureless

rim. The shining burnished surface is crackled. The collection also included a lid-cum-bowl of pale red ware. No iron object was noticed.

Cist - III :

The longer orthostats of this cist measured 3.20 m. long and 1.50 m. high. As in the other cist, the slabs were so arranged as to make a tilt inwards at the top. The northern orthostat now found in fragments was very small (0.55 m. broad and 1.50 m. high). The floor slab was intact.

The contents of the cist were two black-and-red ware globular pots, with narrow bottle-necks and nail-headed rims. There was also a black and red ware deep bowl with a featureless rim. The burnished shining surface is crackled. There were three other red ware carinated vases of similar shape, with flanged rims. Close by were three red ware lids with grooved rims. Except a few calcined bones and the above pottery no other find was noticed.

Sarcophagus - A [Plate 25 (c)] :

While exposing the south-west quadrant of Cist-I, about 4 m. to west of it, a terracotta sarcophagus was exposed at a depth of 10 cm. It had 6 legs and was much crushed and oriented in the north-south direction. It measured 1.37 m. long 0.45 m. broad, 0.47 m. high including legs. The thickened rim was decorated with thumb impressions. The sarcophagus was narrower at the rim and broader at the base. The contents were a few calcined bones, cemented under a compact red soil. No metal objects were found.

Sarcophagus - B :

This is found to the north-east of Cist-I at a depth of 0.15 m. from the surface. It was well-burnt and had six legs. The thickness of the fabric varied between $1\frac{1}{2}$ to 3 cm. It measured 1.12 m. long and 0.45 m. broad inside and 0.50 m. high, and consisted of two black and red ware pots of medium size, with narrow necks and flared-out thickened rims. The third pot is a red ware straight-sided beaker with a featureless rim. A few splinters of calcined bones were found on the northern side. No metal object was noticed.

Urn Burials :

At a distance of 3.50 m. from the Sarcophagus-B towards west, 2 urns were exposed at a depth of 0.40 m. The two urns were planted side by side. Urn-A is a red ware jar with globular body, rounded base and slightly everted rim. It has a thin red wash and decorated with concentric bands. At the bottom of the pot are a few calcined bones.

Urn - B :

The second urn is almost similar in shape and colour as Urn-A. The rim is damaged and missing. Except a few bone fragments no other object was found.

Salient features :

It is interesting to notice the various burial practices at one place, such as stone cist, terracotta sarcophagus and urn burials. Both cremation and excarnation were practised; but stratigraphically excarnation was earlier³⁷. Except the cairn-packing no boulder circle was present. Granite is not available in the vicinity and the slabs used for erection of the cists must have been brought from a considerable distance. This may also explain the absence of boulder circles.

MUKTYALA

It is a prominent Zamindari village in the Nandigama taluk of Krishna District. About 2 km. from Muktyala³⁸, there is a dilapidated village by name Bhogalapadu near river Krishna with an extensive historical mound close by. The mound was flooded by the river many a time in the past. About 1 km. towards north of Bhogalapadu and adjacent to the Jaggayyapet-Muktyala road, there is a rocky knoll, studded with a large number of Megalithic cist-burials, with passage chambers. The mound is locally known as Virulabodu (mound of heroes) and the burials are known as the temples of Rakasis.

Out of curiosity Veturi Sankar Sastry dug out two of the cist burials. One cist had a port-hole, leading to a passage chamber. The passage chamber consisted of skeletal remains of a horse, and the main chamber, of human bones. It appears that the mandible, with teeth and vertebral column of the horse, were intact. The bones were identified by V. Ramachandra Rao, Prof. of Anatomy, Guntur Medical College. Interestingly there is an illegible Brahmi inscription above the port-hole. The letters are considerably big and probably read as 'LOOVISRI'. There is also one more letter below, which was identified as 'JA'.

In the proximity of the burial, there is a figure of a galloping horse, incised over a whitish shale slab.

HASHMATPET

The Megalithic burials at Hashmatpet, about 8 km. from Hyderabad, have been first noticed by Dr. Walker and reported by Meadows Taylor.³⁹

37. Krishna Sastry, V.V., 1976-77, *ARDA & M. AP*, Hyderabad.

38. Sankara Sastri, V., 1956 - *Buddha Jayanti Special*, pp. 13-24

39. Taylor, M., 1862, 1941 (reprint), *op.cit.*, p.64.

During the 19th century, Bell and Captain Doria, as reported by Taylor, opened two tombs and found chains of iron and a bell of brass with iron tongue. In the year 1935, excavation of two more burials was undertaken under the supervision of D.G. Mackenzie. The bigger circle having 24 boulders was 7.6 m. in diameter. The orthostats were 3 m. long and 2.1 m. broad and 10 cm. thick. The floor slab was found at a depth of 2.1 m. below the surface. Pottery and iron implements were placed both inside and outside the cist, with the smaller vessels inside and the larger ones outside. The smaller vessels consisted of bowls, dishes and small pots, mostly of the highly polished black and red variety. The iron implements included a knife or dagger, a sickle, the ring of an axe and the prong of a hayfork (flail) or ploughing implement. Three bronze ferrules of walking-stick-like objects were also found. Fragments of human skulls, four teeth of a middle-aged man and leg bones of a calf were found in a highly disintegrated condition.

Again in 1971, M.L. Nigam⁴⁰ excavated 2 more burials. One of them, completely disturbed, yielded some stray pieces of broken pottery of red ware and an iron piece. The second burial, which is a cairn pit-circle, had a double circle of 22 boulders in the outer and 20 in the inner. The diameter of the outer circle is 10 m. and that of the inner is 8 m. The burial pit, with its orientation north-south measured 4.20 x 3.25 m. The pottery consisted of black and red, polished black, bright red and dull red wares. The chief types are the funnel-shaped lids, bowls, dishes, pots with sagger base and ring-stands, etc. The iron objects recovered were a sickle and an iron stirrup.

MOULA ALI

At Moula Ali⁴¹, which is 8 km. to north-east of Secunderabad, was found to be a very extensive field of cairn circles and dolmenoid cists, occurring in groups. Among the cluster the northern one was extended over 30 to 40 acres of land. The excavations were confined to this region. The circles varied in diameter from 2.4 to 10 m. with the cairn heap, rising to a height of 0.6 to 1.2 m. above surface. The boulders of the circles were roughly dressed and in most of them there were 24 boulders. In the case of circles, too small to have all the 24 boulders, the excess ones were deposited within the circles. Loose earth and stones filled up the interior of the circle upto the level of the cap-stone, which occurred generally at a depth of 1 to 1½ m. No pottery and antiquities occurred above the cap-stone, except in one case, where a number of 'surahis' or water jugs, small pots, bowls and dishes and an iron

40. Nigam, M.L., 1971, "Report of the Excavation of Two Megalithic Burials at Hashmatpet", BACRI, pp.1-3.

41. Yazdani, G., 1915-16, *ARADN*, pp. 6-10
Taylor, M., 1863, *op.cit.*, pp. 65-66.

ring of a hatchet occurred in the loose filling above the cap-stone. The water jugs were all of black polished ware, closely resembling their modern counterparts.

The cists had four orthostats, one floor slab and a cap-stone of a greenish trap rock. The orthostats, projected at both ends, and the end slabs were placed between the side slabs, which varied in dimension ranging from 2 to 3 m. in length and 1.60 to 2.20 m. in breadth. The internal measurements of the cists ranged from 2 to 1 m. in length, 1.20 to 0.60 m. in breadth and 2 m. to 1.20 m. in depth, oriented north-south and often with a slight inclination towards east-west. At the floor level, at a depth of 2.4 to 3 m. from the surface and within the pit but outside the cist, were found placed big and small pots including ring-stands, bowls, dishes, platters, and incense-burners or chalices, identical with similar vessels from the burials in other parts of South India. The largest pots were 1.70 m. in diameter, 0.85 m. in height, while the smallest were only a few centimetres in circumference. The rims were either plain or decorated with various designs and most of the small vessels were black and red in colour and were well polished. The pottery was arranged sometimes in groups or in rows of single pots. The smaller vessels like bowls, dishes, and vases were sometimes deposited inside the cists. The excavators felt that the cists were filled internally with a fine soft earth, often not available in the locality. Yazdani felt that its occurrence, due to the percolation and its mixing up with the contents, was responsible, in many cases, for their disintegration.

The iron objects, consisted of knives, daggers, hatchets, axes, spears, links of a chain and a lamp, supported on three bars. These were generally placed near the right hand of the corpse. Hatchets occurred usually outside the cist on the left or near the head slab. A copper or bronze bell occurred inside another cist, which also yielded an iron lamp with legs. Similar bells have been found earlier at Moula Ali, Narkatpalli, Kunnattur and many other sites.

The burials, according to Yazdani, belong to various periods. The largest ones were the oldest, where the skeletons were more disintegrated, though their outlines could be traced out. The corpses were laid in contracted position. The height of the bodies ranged from 1.60 to 1.50 m. One of the smaller burials contained a comparatively better preserved skeleton.

JANAMPET (Plate 26)

At Janampet,⁴² some 32 km. south-east of Mungapet in the Burgampahad taluk of Khammam district, there existed an extensive burial ground, extending over several kilometres and locally known as the burial

⁴² Wakefield, 1917-18, "Cromlechs at Janampet," ARADH, pp. 12-13.

ground of 'Rakshasas'. The burials are situated in the region, extending from the forest to the summit of the neighbouring hillock, and characterised by great circles of stones, with the central uprights or orthostats, supporting the enormous cap-stones. This site was in the same general locality at where William King and Mulhern studied the dolmenoid cist-tombs, associated with cruciform monoliths but there was a separate group, a few kilometres away from the Kaperlaguru group. No crosses were present in this group. But at some distance, away from the burials, were two wedge-shaped pillars of stone, with rounded projections like a human head, placed above the shoulders, and planted side by side. The larger one had a pointed bottom, 2.10 m. tall, 0.90 m. broad at the shoulders, and 0.40 m. at the head and 0.25 m. from shoulder to the top of head. One of the shorter ones, had two circles placed side by side, 0.15 m. apart from their respective centres, resembling female breasts. Thus, the two pillars represented the effigies of a man and a woman.

One of the circles, 10 m. in diameter, was excavated. In its centre was an oblong cist, 1.20 m. high, covered by a cap-stone of some 1.50 m. x 2.35 m. and 0.60 m. thick. The cist was filled with earth; some 0.40 m. below the top of the cist was found an oblong stone sarcophagus, chiselled out of solid rock and placed on the floor slab of the cist. The cist and the sarcophagus were both oriented north-south. The sarcophagus, placed by the side of the eastern orthostat, contained two iron objects. Outside the sarcophagus and within the cist occurred the remains of a monkey and a mongoose along with some potsherds.

DONGATOGU

At Dongatogu⁴³, 11 km. west of Janampet, was located an extensive cemetery with more than 1500 dolmenoid cists, out of which one was excavated. The stone circle had a diameter of 11 m. In the midst of the cairn-filling was a cist, having 11 orthostatic slabs, three each on the east, south and west and two on the north, supporting a massive cap-stone, 3.50 m. by 2.50 m. with thickness of 0.50 m. It did not contain a sarcophagus but on the floor of the cist were found iron objects and pottery pieces.

The above burials appeared to be family vaults, as some of them contained more than one sarcophagus: some of them were smaller, obviously of the children or members of lesser status. They were generally constructed of the local coarse sandstone slabs, often embedded with pebbles. The iron objects included stirrups, hoes, spears (some 0.90 m. long) and knife blades. The pottery was of bright red colour. The bounding circles, with the boulders dressed sometimes into an arc, were perfectly circular.

43. Wakefield, 1917-17 *ibid.*, pp. 24-29

POLICHETTICHERUGUDDA

Further excavation was conducted by Khaja Md. Ahmed⁴⁴ in the year 1940-41 at Polichetticherugudda. Cromlech-A, situated at the highest point of the hill, has a ring of stones around it, measuring 10.50 m. in diameter. The cromlech is in the middle of the ring, and the cap-stone slab measured 3 by 2 m. with a thickness of 0.45 m. The slab rests upon 12 smaller slabs, 4 each on the western and eastern sides and 2 each on the northern and southern sides. On the removal of the upper slab carefully neither antiquities nor skeletal remains were found in it.

In cromlech-B, the cap-stone slab was supported by 10 smaller slabs. The inside of the cromlech was filled with soft sand and it contained no sarcophagus. The bottom slab was exposed, which measured 2.40 m. north-south and 1.10 m. east-west and 0.42 m. in thickness. On the north-eastern side the slab was rounded. The finds in the grave consisted of iron objects like stirrups, hoes, a spear and a gold ring. The pottery was of light red colour.

The architecture of these graves is plain and simple. They consist of a small chamber, looking like a table, and raised above the ground. The table top is invariably a monolithic slab of varying dimensions, the greatest length, width and thickness of the slab being $3.60 \times 2.40 \times .90$ m. The slab is supported and held above the ground by smaller slabs ($0.60 \times 0.60 \times 0.30$ m.), which generally vary in number, the maximum number being twelve and the minimum four. The chamber has been constructed on a sheet of rock, and where such a one could not be found a slab of rock, equal in size to the interior of the chamber, has been fitted in. The thickness of one bottom slab is 0.45 m.

The majority of the chambers have got a ring of stones around them, with a diameter even of 28 metres. The stones of the rings have been, in some cases, dressed into the shape of an arc so skilfully that they form a complete circle. The area between the chamber and the ring, in some cases, slopes towards the ring and is paved with rubble. This was done probably to make rain-water drain away from the chamber.

EXPLORATION IN THE KARIMNAGAR REGION :

VALIGONDA :

At Valigonda⁴⁵, on the left bank of river Musi, and 22.5 km. from Bhongir on the Nalgonda road to the west of the granite hill, there occurred about 500 cairns, over an extensive area. These circles sometimes

44. Ahmed K.M., 1940-41, *ARADN*, pp.13-16

45. Yazdani, G., 1939-40, *ARADN*, pp. 4-9

had cairn heaps. They had an average diameter of about 11 metres. Two of the cairn circles had a menhir north of them, about 2 m. from the ground. There was a rectangular dry masonry enclosure measuring 48 m. north-south by 26 m. east-west with a height of 0.60 m. At the middle of the southern wall, there occurred a semicircular structure of about 3 m. in radius and divided into two equal halves by an east-west wall. A menhir, 3.20 m. high, stood in the centre of the northern compartment. This curious construction was a new feature not observed in other sites of this region. Yazdani reported extensive Megalithic sites from this region also.

SINGAPUR :

Singapur⁴⁶ is situated at a distance of 6 km. from Huzurabad, a taluk headquarters in the Karimnagar district. The Megalithic site lies at the foot of the hillock, abutting a huge tank. There were about 50 stone circles, found in groups of small and big circles by the road side. The number of stones, found in the circles, varies from 10 to 20 but many of them were missing. Invariably there is a cist in each of the circles but not a single cap-stone is noticed. Some of the side slabs of the cists show up the ground and others are flush with the surface. The internal diameter varies from 4.50 to 7.00 m. One of the burials had 16 boulders in the circle with an inner diameter of 7 m. In average, each boulder, measured 1.50 × 0.90 m. In a few pit circles cap-stones are visible. On the surface a few sherds of black and red ware could be picked up.

The orientation of the cist is peculiar as its long axis was seen on east-west instead of north-south direction. The circle round a cist was formed of 19 big boulders; its outer diameter 8.22 m. and the inner 7.30 m. The cist, which was opened, consisted of hard soil at the top and soft earth or silt at the bottom. Next came sandy soil upto a depth of 1.20 m., below which was found clay-like earth. Potsherds were found at varying depths. Near the eastern end of the cist two big pots had been placed which were totally crushed. The other finds included a bone fragment and a piece of iron, appearing like a spear or arrow-head.

KOLAKONDA :

Kolakonda, possibly a shortened form of Kolanukonda, derived from the Ramasamudram tank, abutting a range of hills. A Megalithic burial complex, consisting of more than 200 graves, lies in an area of one square kilometre near the hill, Peddagutta. The entire area, marked by mango groves and other fruit-bearing trees, is now under cultivation.

The boulders, encircling the burials, must have been brought from the neighbouring hill, at a distance of 100 m. They consist of 17 to

46. Yazdani, G., 1927-28, ARADN, pp. 8-9

21 graaitic boulders with diameters ranging from 7 to 9 m. Many are disturbed and their boulder stones removed for planting them as demarcating lines between the fields. Most of them are pit circles, but there are also a few cist burials with damaged slabs. On the surface a few sherds of black and red ware from the debris dug out from one of the burials could be collected.

The early historical site, coeval with the Megalithic period at Kolakonda, covering an area of 50 hectares, lies over a sloping plain, between the Chinnagutta and a rivulet, a tributary to river Maneru. The surface collection included black and red, red, dull red and black pottery, besides a few Neolithic celts. The entire mound covered by black alluvial clay, with a profuse admixture of ash, is now almost dug up and carried away by the villagers to manure their fields.

POLAKONDA (Plate 27) :

Polakonda, in the Jangoan taluk of Warangal district, can be approached from Mondrai, a small village on the road from Jangoan to Suryapet. Polakonda, about 14 km. from Mondrai, is a small hamlet under the revenue jurisdiction of Ramavaram.

Group - A :

A huge Megalithic complex, consisting of 60 to 70 burials, is located on the south-east of the tank. Most of the burials are cairn circles with or without cap-stones. A few burials have double-circle of boulders. Five burials out of the above complex were measured to get an idea of their dimensions.

Megalith I :

It has a double circle of boulders, 32 in the inner and 35 in the outer; the inner diameter measured 13 m.

Megalith II :

It consisted of a single circle of 25 huge boulders and was provided with a cap-stone, measuring 2.70 × 1.70 m.

Megalith III :

It has a single circle of 14 boulders having an inner diameter of 4.40 m.

Megalith IV :

It has 26 boulders in the inner circle and 30 boulders in the outer circle and has a cap-stone, measuring 3.30 × 0.60 m.

Megalith V:

It has 12 boulders, measuring 5.60 m. in diameter. A cap-stone was provided but it is now disturbed.

Group-B:

At the southern face of the Peddagutta hill and about 200 m. away is a sprawling Megalithic cist-burial complex. There are more than 100 burials, most of which are bereft of boulder circles. The orthostats of many burials are missing but a few burials still retain their identity, jutting out of the sandy soil.

The orthostats were hewn out of white granite, brought from the Peddagutta hill. The longer orthostats of one of the burials measured 2.60 m. and the shorter 0.55 m. The length-wise space inside the cist is 1.70 m. The slabs are 10 cm. thick. The cist is oriented north-south.

Another cist, situated on the bank of a nullah, was recently opened by the villagers and the pottery thrown out. The collection included some miniature vases, with elongated necks and slightly everted rim, a dull red ware lid-cum-bowl and a few sherds of a black polished ring-stand.

Budigapalli

It is a small village about 6 km. from Husnabad. The village is surrounded by a ring of hills, locally known as Valasagattu, Sanjivarayanigattu and Venkayagattu. At the base of Sanjivarayanigattu is a huge Megalithic burial complex, consisting only of cist burials, most of which are damaged. One of the burials is encircled by 16 boulders. The cist inside the circle is in the shape of a Swastika, which measured 1.70 m. long, 75 cm. broad. Another burial has a circle of 24 boulders. A third burial, with a rectangular cist in the middle, was enclosed by 12 boulders. The cist was packed with cairn. Burial No. 4 was enclosed by 22 boulders and the cist was 2½ m. high above the surface.

The biggest circle of the complex consisted of 34 boulders, with an inner diameter of 14 m. The burial pit was covered with a cap-stone of squarish granite slab, measuring 2.70 × 3 metres and with a thickness of 20 cm. The cap-stone was broken.

The cist complex at the foot of Sanjivarayanigattu consisted of more than 50 burials. In between Valasagattu and Sanjivarayanigattu a huge bund was raised to collect rain water from the hills, forming into a deep tank, known as Kalkicheruvu. Apparently this tank must have been constructed during the Megalithic period itself.

About a kilometre away from the burial complex towards north is a tank in the vicinity of a village, known as Regonda. On the western bank of tank Regonda and inside the fields many ancient iron-smelting

spots were noticed. Iron slag was found scattered all over the fields. The author was told that iron ore was mined from the slopes of Valasagattu.

Adjacent to Valasagattu is a historical mound, enclosed by a mud rampart with an existing height of 10 m. above the surface. Surface exploration revealed matt-red ware, conical bowls, deep bowls of well-levigated clay, sherds of chocolate (tan) ware, highly polished-black ware, black and red ware pottery, etc. Some of the potsherds had nail-tip and floral designs. Two deep rain-gullies have been examined. At lower levels a broken mace-head with a diameter of 10 cm. and two Neolithic stone-axes were collected. The total thickness of the cultural deposit ranged between 2 and 2.50 m.

Chinna Torruru

It is situated at 7 km. from Palakurthi village in the Jangoan taluk of Warangal district. There is a large Megalithic complex consisting of 40 to 50 burials, lying on the road side and on the southern slopes of a huge tank. There is a hillock known as Bodagutta, about 200 m. south of the Megalithic complex. Most of the burials are cists of granitic slabs. Some of the orthostats of the cists are projecting out of the land due to the erosion of the soil sliding into the tank.

Bommerā

Bommerā, a small village in the Jangoan taluk of Warangal district, is considered to be the birth place of the celebrated Telugu lyric poet, Bommerā Pothana, who composed the Telugu version of Bhagavatham.

To the east of the village is a Megalithic cist complex. Most of the boulder circles were removed by the villagers; only a few orthostats are visible, projecting out. The author was informed by the villagers that the famous poet lived in the vicinity of the burial site.

Ramunipatla

The village Ramunipatla⁴⁷ is 8 km. away from Siddipet in Medak district. Towards south of the village and half a km. away from there is a Megalithic burial complex, which consisted of 50 burials of pit-circle type, having single and double boulder circles. The complex lies on the southern slopes of the hill. Due to active cultivation the boulder circles were mostly removed. The total area of the complex is approximately two hectares.

One of the burials, which is intact, has a single circle of 15 boulders with an internal diameter of 4.56 m. and an external diameter

47. Narayana Rao, S. 1977—an unpublished report.

measuring 6.40 m. Just 9 m. away from the above Megalith is another pit circle with an internal diameter of 3.30 m. and an external diameter of 4.35 m. The average height of each boulder is 40 cm. and 1.50 m. wide. There are 12 boulders in all. The other structural appendages, such as cap-stone and rubble packing, are absent. Another Megalith has 12 boulders in the circle with an internal diameter of 4.30 m. and an outer circle of 6.48 m.

Thummannapalli

The village Thummannapalli is 4 km. to south of Huzurabad on the Karimnagar - Warangal high way. There are traces of Megalithic circles with scattered boulders and rubble packing. The total area of the site is half a hectare. There are 6 burials intact presently. One burial has an internal diameter of 6 m. with 14 boulders in the circle. The average distance between burial to burial is not more than 2 m.

Chilpur

The village lies 10 km. away from Huzurabad. On the outskirts of the village is a small group of Megalithic burials, extending over an area of half a hectare on the slopes of a small hillock. By the side of the burials is a small rivulet. The average distance in between the burials is 2 m. Only 2 burials have cap-stones, one of which measured 1.50 x 2 m., with a thickness of 75 cm. The number of boulders around the burials varies from 14 to 22.

Sirisipalli

It is about 7 km. from Chilpur in Huzurabad taluk. A huge burial complex, with 49 numbers, lies towards north-west. Two burials with double circles were noticed. One of them has 16 boulders in the inner circle, and 9 in the outer circle. The diameter of inner circle is 6 m. and that of outer one is 7.50 m. The second burial has a circle of 19 boulders inside and 21 outside, with diameters of 8 and 9 metres respectively.

Mandapalli

Mandapalli in Medak district is situated at a kilometre away on the east of Siddipet-Karimnagar road. There are about 45 Megalithic circles here. There is one more burial complex with 16 burials to the north-east of the village. The complex contains, besides pit circles, many cist burials, the slabs of most of which have been removed by the villagers.

Palamakula

Palamakula is situated on the Siddipet-Husnabad road, about 14 km. from Siddipet. To the north-east of the village there is an

extensive megalithic complex, with only 30 burials remaining intact. The rest of the burials have been disturbed by the villagers.

Narmat

It is about 5 km. away from Palamakula. There is no proper road to the village and the approach is by a narrow cart-track. The village and its surroundings are covered by black soil, mostly uneven and cultivated by wells.

There is a Megalithic burial complex towards south of the village. Most of the cist burials have been disturbed by the villagers for the sake of stone slabs. Many of the circle stones have been removed and utilised for the demarcation of field boundaries.

Pullur

It is a small village about 1.6 km. away from the Siddipet-Kamareddi road. At present there are about 40 Megalithic burials on either side of the Siddipet-Kamareddi road, many of them disturbed by the local people.

Pochampad (Nizamabad District)

The department of Archaeology and Museums conducted excavations at Pochampad⁴⁸, on the right bank of river Godavari in Nizamabad district, for two field-seasons, on an extensive Megalithic burial site. The three km. long stretch, along the bank of river Godavari, is marked by several Megalithic burials in the form of single and multiple cairn circles (Plate 28).

Megalith-I :

It consisted of a single circle of untrimmed massive granitic boulders numbering 14, and measuring 3.6 m. in diameter. The space in between boulders has a very thick scattering of rubble, which spread to the centre. It appears that the burial was partly disturbed by treasure-hunters. However, the funerary assemblage remained undisturbed.

At the bottom of the pit, measuring 1.8 m. \times 1.3 m. the pottery was huddled up consisting mainly of red-ware pots and black and red ware bowls and dishes. The bottom of the pit was levelled up by a deposit of loose earth to a thickness of 5 cm. as a sort of cushion to the overlaid pottery. The black and red ware bowls seemed to have been interred earlier than the red ware. In the middle of the pit were seen two crushed skulls, besides a few bones deposited over the red ware pots. The skulls

48. Murty P.R., 1963-65—An unpublished Report.

were completely crushed, leaving no traces for identification. The mandibles were seen dislodged from their sockets. The whole pit was filled up with dug-out earth and alluvial clay clods upto the brim level.

Megalith-II :

It consisted of 19 closely planted unhewn granite boulders with an external diameter of 9.4 m. and had a very heavy packing of rubble. The excavation revealed a central pit, measuring 2.15 m. in length and 1.67 m. in breadth, and with its orientation in the east-west direction. The pottery consisted of black and red ware, red and all black ware, comprising mostly pots, dishes, and hour-glass type stands. To the extreme left of the pottery were seen 4 skulls in a crushed state. One of the skulls faced upwards, with the frontal region and mandibles intact, and the bones lain in an extended position. The iron objects consisted of a sickle, a chisel and a few animal bones seen lying by the side of the pottery.

Megalith-III :

It is bounded by a circle of 14 unhewn granite boulders. The little space in between the boulders is filled by a tight packing of rubble, brought from the river bed. The rectangular pit measured 2.85 m. \times 2.09 m. On the pit floor was placed a large bulk of pottery, consisting mainly of 14 red-ware pots. Along the western edge of the pit and over the red ware pots was placed a heap of skeletal remains in a disarticulated state. The crushed skull, separated from the mandible, is placed towards north and turned to west. On the right side of the skull a heap of animal bones was noticed at a fairly higher level.

Kadambapur (Karimnagar District) [Plate 29 (a)]

The extensive excavations at Peddabankur have not yielded any human skeletal remains. Kadambapur⁴⁹ is the nearest burial site to Peddabankur and it is reasonable to presume that the people, who lived at Peddabankur, buried their dead at Kadambapur.

At Kadambapur exactly to the north of Peddabankur in Peddapalli taluk and at a distance of 8 km. a huge burial complex, consisting of more than 500 burials, perched on the western and eastern slopes of the hills, is found. The river Maneru, a tributary to Godavari, is abutting the burial complex to the south. The Andhra Pradesh Department of Archaeology and Museums excavated 5 burials under the supervision of the author.

Megalith-I [Plate 29 (b)] :

It is situated at about 100 m. from Pavuralabodu and appears to be an important burial, prominently marked by a double circle of 21

49. Krishna Sastry V.V. Dr. 1974-75, ARDA & M under publication.

large-sized boulders in the inner circle with a diameter of 7.60 m. and 25 boulders in the outer with a diameter of 9.75 m. The boulders were firmly packed with cairn filling, consisting of basaltic and granitic pebbles. The filling rose to a tumulus of 1 m. high from the surface. The pit was covered by a huge cap-stone, measuring 7 x 4 m. with a thickness of 40 cm., weighing approximately 10.15 tons. It might have been slid down to the burial pit by the contrivance of a ramp. The burial pit, cut to a depth of 2 m. from the cap-stone, was filled up with loose brownish earth with a mix-up of small kankar and granitic morrum that was dug out of it earlier.

The pit contained a badly crushed skull, with parietal and occipital bones, broken into small fragments. The mandible and maxilla were missing. A few fragments of longer bones, such as femur, tibia, fibula were placed in a rough alignment.

The funerary pottery was arranged at varying levels. The bigger red ware vases were placed at a higher level which were subsequently pressed-down and broken. At a slightly lower level was a ring-stand with a black ware shallow dish over it. At a still lower level were the smaller pots and bones.

A javelin, 1.25 m. long, with a shouldered head and its tip slightly broken was placed parallel to the skeletal remains. Another copper-hilted curved dagger was near the skull at a corner of the pit. A second smaller javelin was placed by the side of the bigger one.

Megalith-II [Plate 29 (c)] :

It is situated at about 10 m. to the west of Meg. I and consisted of double circle of boulders, 21 in the inner with a diameter of 6.50 m. and 25 boulders in the outer, 7.50 m. in diameter.

The two circles were provided with a firm packing of basaltic and granitic pebbles. A small cap-stone, 1.30 m. long and 42 cm. broad, covered the burial pit. The pit was cut to a depth of 1.50 m. from the cairn and oriented in the east-west direction.

This is a secondary burial, with two badly crushed skulls placed at the northern end of the pit, with a bottom cut-out conch placed near one skull and another near the crest of the second skull. A single mandible and a few longer fragmentary bones, femur and tibia, were deposited in a rough articulation.

A small dagger was found near one of the skulls and a pair of javelins, each about 85 cm. long, were placed over the pottery. Leaving out the skulls, all the other bones were covered up with funeral pottery.

The interesting feature of this burial is the absence of black and red ware pottery. The other wares included dull red, all black

and red. The bigger vases are of red ware. Hour-glass type ring-stands are of all black ware and the smaller vases are of red ware. The total number of pots were twelve, mostly crushed.

Megalith-III [Plate 29 (d) and (e)] :

Located at about 50 m. north of Meg. II, it has a single circle of 19 granitic boulders with an inner diameter of 7.60 m. and a huge cap-stone, measuring 3.35×1.83 m. and with a thickness of 0.46 m., half of it being visible before excavation. A tight packing of rubble between the cap-stone and the boulders rises to a height of 60 cm. from the surface level. The pit measuring 2.30×1.00 m. was found 1.10 m. deep below the cap-stone. It was roughly rectangular in plan and oriented exactly in the north-south direction. It was filled up with morrum and disintegrated rock that was dug out of it.

The skeleton with complete articulation was placed in the middle of the pit over a bed of soft clay of 8 cm. thickness. The skull was badly crushed and was placed towards north with two small stones on either side. On both the flanks of the mandible were found two spiralled wire ear-rings with much incrustation, apparently made of gold. A dagger 28.5 cm. long, 5 cm. broad was found near the clavicle which was slightly dislodged from the original position. The phalange bones of both the hands were pushed into two bottom-cut conches. A few of the ribs were slightly damaged and the pelvic bones also crushed. The left femur was broken. Interestingly the right tibia and fibula were found amputated in oblique fashion and the heel bones were missing. The truncated tibia and fibula were placed over two stones.

This strange custom was also noticed at Diamabad where the part below the knees was cut off. There were 14 holes, all round, which suggest the existence of a canopy. It is therefore suggested that it could be a case of 'lying in state' prior to the burial. At Inamgoan, in case of adults, the part below the ankles was found missing.

On the right side of the pit were two hand-made, flat-based and ill-fired dull red ware jars. There is an applique cord design over the hand-made vases. The smaller black and red ware pottery such as the bowls, funnel-shaped chalices, ring-stands, etc. were arranged over the body below the shoulders leaving out the skull open. The total number of pots were more than 33. Just over the pelvic portion, seven dull red ware ring-stands, with funnel-shaped chalices, were placed.

Megalith-IV (Dolmenoid Cist) [Plate 29 (f)] :

Meg. IV is a disturbed cist burial with a single concentric circle of 21 boulders. But for the northern orthostat, the other three were removed and thrown out in pieces by the treasure hunters. The cist was

provided with a floor slab, measuring 2.30×1.30 m. and of 6 cm. thickness. The northern orthostat, with a height of 1.25 m. and a breadth of 1.70 m., was provided with a big port-hole, chiselled almost in the middle with a diameter of 50 cm. It was firmly sealed with a granitic door slab (0.75×0.65 m). After closing the door a tight packing of rubble was provided behind the door to prevent its fall back. A shallow ramp was provided to enter the port-hole through which a man could conveniently enter the cist so as to arrange the funerary offerings.

The floor slab (10 cm. thick) was found at a depth of 1.30 m. from the present surface. The cist was filled up with funerary ware and earth over the skeletal remains to a height of 80 cm. Fortunately the hand of the robbers did not touch deep into the deposit.

Two skulls, much pressed and crushed, were at the northern end of the pit. The maxilla and mandible were displaced. A single clavicle was placed parallel to the ulna and radius. A pelvis, also crushed, was below tibia and fibula. Evidently this was a secondary burial with longer and important bones placed in a rough extended articulation. The skull on the right was badly crushed and sutures dislodged. The other skull was also pressed heavily against the floor and its features distorted. A clavicle bone was placed vertically under the mandible of the first skull. The ulna and radius were bundled-up below a pelvis found in the middle. Most of the bones were in a very fragile condition.

The skeletal remains and the funerary ceramics were placed over a bed of morrum, mixed up with clay bed of 5 cm. thickness. No preservatives such as lime or ash were used. At the south-eastern corner and inside the cist a fragment of an animal bone was found. There was no evidence of cremation. Most of the bones were fragmentary.

A crescentic tanged battle-axe was on the right side of the skull. A pointed knife was also near the head.

Lotas of black and red ware with elongated neck were placed towards south. The entire pottery was wheel-made. One of the red ware vases found in this burial has an incised design in the form of a square with loops at the corners. The same design was found over a garnet button seal found at Peddabankur with a Brahmi inscription of early Mauryan characters, reading as 'KAMASA'.

Megalith-V [Plate 29 (g)] :

It has a double circle consisting of 21 inner boulder ring and 25 outer with an inner diameter of 6 m. The ovoid burial pit (2.46×1.35 m.) was covered with a huge cap-stone (4×2.55 m. and 37 cm. thick). The total depth of the pit was 1.98 m. from the cairn filling. The floor was paved with 8 cm. thick deposit of ashy clay.

The skeletal remains were simply huddled up without proper arrangement. Two skulls were found side by side with a dislodged mandible. A femur bone was placed over a skull across the left ear socket. A mandible with dislodged molars was found near a pelvis. The humerus, ulna and femur, etc. were kept in an oblique position to the skull. The second skull was much crushed and flattened. The occipital bone of the first skull was broken into small fragments. A single vertebra was found near pelvis. A phalange bone was placed into the left eye-socket. At the four corners were found four small stones.

At the floor level was an iron javelin (1.55 m. long and 2 cm. thick) provided with a shouldered point (41 cm.). In the vicinity was a tanged spear-head and a 12 cm. long barbed arrow-head. Another 11 cm. long arrow-head was at a distance of 10 cm. from the javelin. In total seven iron implements, such as javelin, spear-head, arrow-head, dagger, knife, etc. were found.

The funeral offerings were arranged at different levels. At the level of the bones were the black and red ware pottery such as dishes placed over hour-glass type ring-stands. An all black ware vase, a funnel-shaped chalice, a black and red ware dish, a black and red ware carinated deep bowl were found near the skulls. Most of the pots were at the eastern side of the pit. At a height of 40 cm. above the floor two red ware storage pots, slightly tilted towards the pit, were found at the north-eastern corner. The skeletal remains occupied a total space of 58 x 65 cm.

It may be noted that the agricultural implements were rarely noticed in any of the burials excavated.

Megalithic Burial Contents

The Megalithic burials contained a large variety of pottery, iron objects, a few stone objects and ornaments such as beads of terracotta, semi-precious stones, gold or copper, shell, etc. Sometimes ear or nose ornaments, armlets or bracelets, and diadems were noticed. Very often grains of paddy and other cereals were offered. Some burials also contain skeletons of domesticated animals such as horse, etc.

A. Pottery

The most important among the burial furnishings is the pottery, which consisted mainly of the black and red, the black polished, and red polished, coarse red wares, etc. The russet-coated painted ware, which was reported from some South Indian burials, is absent in the burials in Karimnagar region. Gururaja Rao⁵⁰ classified the Megalithic pottery

50. Gururaja Rao, B.K. Dr. 1972, *op.cit.*, pp. 257-258

into two groups, the coarse and unpolished receptacles like the burial urns, the sarcophagi and their lids and secondly the well-fired finely polished smaller vessels.

The burial urns are mainly of two categories, the sarcophagi and the pot burials. The sarcophagi ware generally made of coarse grained gritty clay and mostly hand-made.

They are shaped into thick sectioned large vessels of pyriform or fusiform urns with elongated body, pointed or truncated bottom as found at Adiachnallur in Trinelvelli district, and Amruthamangalam in Chengalpat district, Amaravati and Nagarjunakonda in Guntur district. In one of the burials at Nagarjunakonda two huge red ware urns, one hand-made with a flaring rim and elliptical body, tapering to a disc base with a mat design was noticed. It has a light red slip. The other urn was cruder than the above. It has a finger tip decoration in double rows on the shoulder and a loop on the lower. From Bayyaram Megalithic burials a three-legged pyriform pot of dull-red ware was extracted. It has three legs, shaped like the teats of a cow. But for the legs, the entire pot was wheel-made (Plate 30).

At Amaravati⁵¹ Alexander Rea excavated 17 urn-burials below a minor stupa. The urns contained earth and pottery. An urn-burial was excavated below a Buddhist stupa at Yeleswaram⁵². It is a large red ware pot containing human skeletal remains, and covered by an inverted bowl serving as lid. The pit in which the pot was deposited was sealed with a cap-stone.

The other type, the sarcophagus was noticed in cairn circles, inside burials and as well separately. They were sometimes provided with flat or convex terracotta lids. Some sarcophagi have rows of legs at the bottom. Some aberrant types of sarcophagi are the zoomorphic type like the ram-shaped one from Sankhavaram in Cuddapah district or the cow-shaped one from Kerala,⁵³ or elephantoid urns from Perambar.⁵⁴

The sarcophagi either in pit circles or cist burials are found from South Arcot, Chengalpat and North Arcot districts of Tamilnadu, Kolar district of Karnataka and Cuddapah, Kurnool, Mahboobnagar, Krishna and Guntur districts in Andhra Pradesh. The most common types are oblong cists with apsidal ends, vertical walls, and thickly-grooved

51. Rea A. 1908-9, *ARASI*, pp. 88-99.

52. Khan A.W. 1963, *A Monograph on Yeleswaram Excavation*, pp. 8-9.

53. Aiyappan A. 1945, "The Megalithic Culture of Southern India", ISCA, 32nd Session.

54. *Cat. Adl. Peru* 1915, pp. 1-49.

ms. The walls slightly bent inwards, resulting in a bulging body. Sometimes they are provided with two or three rows of legs, ranging from 4 to 21 or more in number, often hollow and pierced with holes as at Enner, Kunnattur, Sunur and Peddamarur.

A unique terracotta sarcophagus (Plate 31) was excavated, in the past, at Maski. It is long and cylindrical in section with a flat base, rounded top, and a squarish door in the middle with a convex door slab.

A unique ram-shaped sarcophagus from Sankhavaram⁵⁵ in Cuddapah district has an oblong chamber and 6 legs. It was decorated on its upper border, with rope designs all around. The lid was in two pieces, the front one rising up in the form of the animal's neck, terminating in a socket into which fitted a detachable head of a ram-like animal with entwining or curling horns. The back part was rounded and without a tail. It contained uncalcined human skeletal remains.

The sarcophagi, excavated at Tenneru in Krishna district appear like huge bath-tubs, each about 2 m. long. They were made into two halves and in case of shortage of a suitable size for any abnormally tall individual the two halves were pulled apart and the gaps between the halves were plugged by a package of potsherds. The sarcophagi were covered with convex lids. The largest earthenware sarcophagus measured $1.94 \times 0.50 \times 0.50$ m. It has 12 perforated legs in 2 rows. Some have a thin red-slip and decorated with an applique design of chevrons over the shoulder. Some have two perforations in the front side either representing a visage type or port-holes.

Three types of sarcophagi were recently excavated by the author at Peddamarur in Mahaboobnagar district. All the three came from Megalithic cist-burials with single, double or triple chambers. The cists have invariably port-holes and passage chambers towards south. In Meg. 2, a double-chambered cist, two sarcophagi were found in the western chamber and one in the eastern. Out of the two, one is of red ware and the other of coarse red, both placed in the north-south orientation.

The first sarcophagus, the red-slipped one, is barrel-shaped and pentagonal in cross-section and truncated at both the narrowing ends. A door 20×17 cm. was provided slightly above the base, with a door slab (Plate 32).

The second sarcophagus, of coarse red ware, is fusi-form and pointed like a spindle at both the ends. The body was wheel-made and the pointed ends hand-made. It has a light red wash and decorated with double bands of multiple concentric lines over both the tapering ends. The door in the middle has a closing slab (Plate 33).

55. Raghavan M.D. 1935: *Current Science*, Vol. IV, pp.306-7

The third sarcophagus, of hand-made, is oblong and rounded at both the ends. It has 6 legs in two rows and decorated with an applique band of finger-impressions below the rim. At one side of the rim a terracotta figurine, of a bovine animal, was luted. As it was intended to be luted to the sarcophagus in the place of the second horn, it has only a single sturdy horn with a backward sweep. The head is slightly turned aside. Bulls or cows, if they are of long-horned type, usually have their horns curved forward, and if they are of short-horned type they have stumpy and pointed ones. But the horn of the above terracotta figurine is sturdy and rounded like that of a bull or cow but is long with a backward sweep resembling that of a buffalo (Plate 34; Fig. 3).

The buffalo, believed to be the vehicle of Yama, the God of Death, presides over the southern quarter. The cist-burials, with passage chambers at Peddamarur and the neighbouring sites, Uppalapadu and Chagatur, have their passage and port-holes invariably facing south. The elliptical houses, excavated at Peddabankur in Karimnagar region, possibly contemporaneous with the Megalithic period, have their doors also facing south.

The typical black and red ware is invariably associated with all the Megalithic sites in South India. It is characterised by uniformly fine fabric, burnished and always plain without much decoration. It is generally burnt in low temperature and hence it withers away if kept under wet conditions for long. The clay of the black and red ware or black ware was well levigated and does not usually have any sand particles in the paste. It was wheel-turned and the fabric ranges from medium to fine. It was fired under reducing condition, possibly by inverted method. The vessels have a glossy slip on both the sides and a few were salt-glazed by throwing salt into the fire in the later stages of firing. The crackling noticed over some pots was due to salt-glazing.

Krishna Murthy⁵⁶ suggested that the pottery was fired on open platforms, with slots provided at equal distances. Beneath the platform, apertures were provided for feeding the flames. The pots were kept with the rims inserted into these grooves and the rest of the portion exposed. The interior portion of the pot was always filled in or pasted with combustible material. When the pots come into contact with the flames the exterior portion of the pot, which is exposed, turns red and the rim portion turns black due to indirect contact with the flames. As a rule the interior portion turns black due to its concealment from the combustible material. The black-slipped ware was fired under completely reducing condition.

56. Krishna Murthy K. 1965, "Some Technical Aspects of Indian Pottery" *JOHRS*, pp. 36-38

In Meg. I, a triple-chambered cist burial at Peddamarur, there is a unique red and black bowl, which is red at the rim and black below and inside. It appears that the pot was straight fired by piling up one bowl over the other. As the top portion, about 2 cm. high, was fired under oxidising condition it turned red and the lower portion, fitted into another bowl in reducing condition, turned black.

While the black and red ware and black-slipped ware are characterised always by smaller pots of various shapes, the red ware is, besides a few small pots, by ring stands, globular pots, often containing the skeletal remains, some carinated handles, among which the majority shapes being globular pots, storage jars, etc.

The coarse red ware is marked by ring-stands, lids, miniature pots, besides the urns and the sarcophagi. Among the red ware are included medium-sized vessels with out-turned and externally thickened rims, concave necks and bulging profiles. There are also typical tulip-shaped lid-cum-bowls, a common type in most of the Megalithic sites. There are basins with externally cut thickened rims, sometimes sharply or bluntly carinated; pot-bellied vases with out-turned featureless or splayed-out and externally grooved, thickened rims; jars with externally thickened and under-cut rims, sometimes decorated with chevrons. The black ware types included ring stands, mostly of squattish type with an hour-glass section, conical bowls, gourd-shaped flasks, lids, dishes, platters, straight-sided or concave-sided miniature pots, perforated globular pots with thickened rims, etc.

The more common shapes in black and red ware from the Megalithic burials include deep bowls with round, flat, or pointed bottoms, with straight, flaring or bulging sides, often carinated at the shoulder and having sharpened, rounded, everted, or featureless rims, and dishes with round, flat or sagger bases, straight or convex sides with featureless, sharpened, everted or nail-headed rims. Deep or shallow vessels with rounded base, globular body, carinated or rounded shoulders, occasionally sharp or long, straight or concave necks, and globular bodied pots are also found.

The rare types of black and red ware include chalices or bowls on hollow pedestals, with or without slits on the hollow pedestal, or the pedestalled vases as from Maski⁵⁷, tulip-shaped vessels, lid-cum-bowls, funnel-shaped lids with convex top, ring terminal top or flat-nobbed top, three or four-legged jars, with conical or long tapering body and carinated shoulder, vases, spouted bowls, etc.

From Gajjalakonda⁵⁸ in Kurnool district a unique ladle with a solid handle was found under a sarcophagus. It is buff-coloured and 24 cm. long, 12.5 cm. tall.

57. Thapar B.K. 1957, *op.cit.*, fig. 14, pp.55

58. Longhurst, 1914-15, *Gajjalakonda*, ARASMC, pp.39-49

Mention may be made of the long funnel-shaped black and red ware vessels, found in many Megalithic sites as at Brahmagiri (Type-100, p. 234-235), Sanur (Type-77, p. 28), Maski (Type-B (V) 2, p.62) and Piklihal. Similar types also occurred at Kadambapur and Pochampad in Karimnagar region. In Meg. III, a pit burial in Kadambapur, seven black and red ware funnel-shaped vases, with rounded finial tops placed over seven ring-stands of coarse red ware were deposited over the belly of a skeleton, noticed in complete articulation. They were previously designated in the excavations mentioned above as lids, but their rims are thin and slightly out-turned without ledge or groove to cover a pot. Evidently these are goblets or chalices and their placement on the ring stands in situ, strengthens the above view [Plate 35 (a) and (b)].

A slightly bigger all-black ware funnel-shaped vase with rounded base was recovered at Pochampad. The other type is a black and red ware vase with a flat base, a thin featureless rim, decorated with concentric grooves below the rim. Four varieties of lids all in black ware are noticed; one is a dish-topped lid, sometimes decorated with concentric bands below the neck and deep groove inside the mouth. This type was reported from Yeleswaram and Jadigenahalli.⁵⁹ The second variety is recovered from Pochampad [Plate 36 no (1) and (4)].

The rare types from the Megalithic burials in the Karimnagar region included deep bowls with featureless, slightly out-turned rims and a ledge near the flat bottom (Plate 37 no. 1). It looks as if the red portion of the lower half of the bowl and the black portion of the upper half were made separately and luted before firing. Similar bowls were reported from Sanur.⁶⁰ The bowl from Kadambapur has a graffiti of circle with a bisecting line and a spiral-like incision.

Lids with Ringed and Knobbed Terminals (Plate 38)

There is an all-black conical lid from Pochampad in Nizamabad district, with a deep groove on the interior of the rim so that it could sit securely over the vessel intended to be covered. This type was also noticed at Sanur.⁶¹ The lids have deep channels under the mouth and terminals at the top in the shape of horizontally projecting double-pointed knobs for easy grip. The terminal of one lid has a flat double knob, one side slightly raised, probably suggesting the head of an animal. The other type comes from Kishtapuram cairn circles (near Yeleswaram), which has a ringed terminal. Similar types were

59. Seshadri M. 1960, *Jadigenahalli*, p.21

60. Banarjee N.R. et al, 1959, *op. cit.*, types 32-36, p.25.

61. *Ibid.* types 29-31, p.24

reported from Sanur,⁶² Brahmagiri,⁶³ Arikamedu,⁶⁴ Nagarjunakonda⁶⁵, and Yeleswaram.⁶⁶

In one of the Yeleswaram⁶⁷ pit circles was found a unique burnished black ware dish-on-stand, covered with a lid. The lid has a ring terminal. The circular stand has triangular perforations in the lower half and rectangular perforations in the upper half. A dull red ware ring stand with triangular projections at the top was reported from Pochampad.⁶⁸

The fourth variety has a knobbed terminal with a ledge below. This type was found in the cist burials at Peddamarur and Yeleswaram⁶⁹ and Kaundinyapura⁷⁰. Similar knobbed lids come from Khapa.⁷¹ The knobbed terminals from Peddamarur and Khapa resemble a human phallus. If it were really made to resemble as such we have to examine whether the ring and knobbed terminals represent the sex symbols of the dead. According to Asvalayana Grihyasutra⁷² IV. 5 the urns containing bones of women had special marks but not those with the bones of men. Narayana, the commentator, called the former as Stanavathi and the latter as Stanarahita. Aiyappan⁷³ draws attention to the opinion held by Dr. Heddon that the pot forms are modelled on natural objects and that the pottery shapes in India seem to have derived from natural objects.

Mention may be made of hat-shaped lids (Plate 39) found at Peddamarur. Some lids have ledge under the mouth and hollow inside. Some are of coarse red, while others have a thin pale red slip. They were found both in the habitation and the cist burials. Some of the lids resemble a female breast with the indication of even the nipple.

An all-black ware bowl from Viraboyinikunta, at Yeleswaram, is bluntly carinated at the shoulder, with a groove around the rim, and rounded base. The pot appears like a tumulus in its inverted position.

62. Banarjia N.R. *op.cit.*, fig. 74, pl. 5, 52, p. 28

63. Wheeler R.E.M. 1947-48, *op.cit.*, fig. 13-p.2, p.217

64. Wheeler R.E.M. 1947-48, *op.cit.*, para 2, p.274; quoted by the author but not illustrated in Arikamedu, *AI*, Vol. 2

65. Khare, M.D. 1975, "Nagarjunakonda" (1954-60), *MASI*, No. 75, fig. 90, type 10, p. 198.

66. Khan A.W. 1963, *op.cit.*, fig. 1, p.26

67. *Ibid.*, fig. 3, object 1, p.28

68. Murthy, P.R., An unpublished report

69. Khan A.W. 1963, *op.cit.*, fig. 4, type 3a, p.29

70. Dikshit M.G. 1968, *Excavations at Kaundinyapura*, type 18, pp.69

71. Deo S.B. 1970, *Excavation at Takabghat and Khapa*, p.38

72. Kane P.V. 1953, *History of Dharma Sastra*, Vol. IV, p.241

73. Aiyappan A. 1934, "Prehistoric Hand-made Pottery", *MAN*, Vol. 34, p.178

In Meg. I at Peddamarur a pit was scooped into the bed-rock under the floor-slab of the cist in which funerary ceramic assemblage, consisting of a squattish ring stand, gourd-shaped black ware pot, etc. was deposited. The pot has a bottle neck, opening to a splayed out mouth with a groove inside. It is bluntly carinated above the flat base (Plate 40). Similar pots were found at Viraboyinikunta, Lohimancheruvu, both at Yeleswaram and as well at Moulali⁷⁴ and Hashmathpet⁷⁵, near Hyderabad.

Visage Pot (Plate 41, pot no. 2)

Also from Peddamarur was found a coarse red pot of medium size, with three perforations, two above in one line and one below possibly representing a visage type. The pot was kept exactly at the north-eastern corner of the cist. According to Hindu architectural tenets the north-eastern corner is said to be presided over by Laxmi, the Goddess of wealth. It is likely that the pot symbolises the Mother Goddess. Visage urns were previously noticed in the Swat Valley⁷⁶ graves at Timergarha (1964).

Sun Symbol

A black ware dish in Meg. I at Peddamarur was decorated with Sun symbol in the form of a circle in the middle and enclosed by triangular radiating lines. These radiating lines are again enclosed by a chevron pattern in between two concentric lines. In the later Buddhist art we find Yakshas or Yakshinis are enclosed in a lotus medallion, as found at Dhulikatta⁷⁷ in Karimnagar region.

From Pochampad pit burials there was a rare type of red ware vase with a squattish or bulging body and a long cylindrical neck, narrowing towards the featureless rim. Some vases have bulges in the middle of the neck (Plate 42).

B. Iron Objects from Megalithic burials

In South India iron objects constitute, besides pottery, one of the important features of the Megalithic burials. The repertoire of iron objects found in the *Megaliths* displays a wide variety pertaining to the household, agriculture, and war. They include daggers, knives, wedge-shaped blades, lances or javelins, spear-heads often with barbs on one or both sides, arrow-heads both socketed and tanged and swords of single or double edge. Besides, there are objects of house-hold utility and agricultural

74. Yazdani, 1915-16, *ARADN*, pp.6-10

75. Nigam M.L. 1971, Hashmathpet Excavations - No.8, p.16

76. Dani A.H. 1964, "Timergarha and Gandhara Grave Culture" - *Ancient Pakistan*, Vol. III, p.75

77. Krishna Sastry V.V. Dr. 1975-76, *ARDA & M, AP*

implements such as flat-axes, often with ring fasteners, hatchets, chisels, tripods to support pointed based vessels, lamps, hooks, knives, sickles, bill-hooks, spades, hanging saucer lamps, rods with rounded heads, resembling the beams of weighing scales, hoe-blades, horse-bits, ferrules, bangles, nails, frying pans (*sthal*), ladles with long handle and bells, etc.

In the Karimnagar region the Megalithic burials at Pochampad have yielded an array of iron objects. These included a number of daggers of various sizes, the longest measuring nearly 35 cm. They have copper or bronze ferrules at the top of the blade and at the junction of the tang. The ferrules have holes in the middle so as to allow insertion of the tang, the purpose of which might be two-fold viz, to serve as a decorative piece and to prevent backward jerk of the sharp iron blade (Plate 43). Similar daggers with copper ferrules were also noticed at Kadambapur and with iron ferrules at Nagarjunakonda.

The other object is a goad or *ankush* with a massive rod handle and a horizontal curving spike. The weapon is usually found in Hindu sculptures, carried by the Gods and Goddesses. It was probably used as an elephant goad and also as a weapon of warfare. A similar bronze weapon from Mohenzodaro⁷⁸ was described as a hook.

There are also a good number of chisels with sometimes curved or flat cutting ends. Arrow-heads are both tanged and socketed. They were found at Nagarjunakonda⁷⁹, Yeleswaram⁸⁰, Sanur⁸¹, Sisupalgarh⁸², Brahmagiri⁸³, Takalghat⁸⁴ and Maski⁸⁵ in the Megalithic context. Two unique types of arrow-heads come from Peddamarur cist burials. Both are blades in the shape of an isosceles triangle. The arrow-head was possibly hafted at the base of the triangle. A lenticular arrow-head was recovered from Peddabankur in the Megalithic level with pointed ends on both the sides. It was probably hafted at the shorter point.

Stirrups (Fig. 4)

The other objects to mention are horse-bits and stirrups. The stirrup from Pochampad has a flat horizontal leaf-shaped plate, attached

78. Mackey E.J.H. 1938. "Further Excavations at Mohanjodaro-Vol. I," Pl. CXXI, No. 43, p. 472

79. Raghbir Singh, 1975, Nagarjunakonda (1954-60), *MAI*, No. 75, Fig. 86 Nos. 9 & 10, p. 181

80. Khan A.W. 1963, *op.cit.*, p. 48

81. Banarjee N.R. et al. 1959, *op.cit.*, p. 36

82. Lal B.B. 1949, "Sisupalgarh, 1948, An Early Historical Fort in Eastern India" *AI*, Vol. 5, p. 93

83. Wheeler R.E.M. 1947-48, *op.cit.*, p. 260

84. Deo. S.B. 1970, *op.cit.*, p. 47

85. Thapar B.K. 1957, *op.cit.*, p. 115

to two vertical blades at the back. Both the blades were riveted together at the top to be fastened to the leather strap. Stirrups were previously recorded at Adichanallur⁸⁶, Sanur⁸⁷, Kunnattur⁸⁸ in Tamilnadu; Janampet⁸⁹, Pochampad,⁹⁰ Uppalapadu⁹¹ and Guntakal⁹² in Andhra Pradesh; Junapani⁹³ and Takalghat⁹⁴ in Maharashtra; besides the skeletal remains of a horse itself at Pochampad and Junapani.⁹⁵ It is a proof positive that the horse and its saddlery were quite in vogue during the Megalithic period. The horse must have been put to various purposes. Gururaja Rao⁹⁶ suggested that the use of horse indicates cultural indebtedness to the Baluchi cairn builders. The other interesting bits of saddlery are the curb-chains to which the reins are fastened at the two ends and the chain inserted into the mouth of the horse. Such a chain, with two separate links, was recorded from the Megalithic level at Peddabankur. Each of the links was pressed together in the middle.

The other interesting tool is an axe or celt with crossed fasteners. A clefted wooden handle was possibly hafted through the crossed-straps. Similar axes were noticed at Takalghat,⁹⁷ Junapani,⁹⁸ Sanur,⁹⁹ Brahmagiri,¹⁰⁰ and Adichanallur.¹⁰¹

A similarly fastened adze came from the Megalithic occupation level at Peddabankur (Plate 44). The iron strap is wound into a double ringed shaft hole around a thick adze blade which has a blunted butt-end and straight-cutting edge. A nail was driven into the haft through the back ring for securing the adze blade which is 16 cm. long (No.12, PBK-68). There is an iron plate casing inside the crossed fasteners.

86. Rea A. 1902-03, "Adichanallur Excavations", *ARASMC*, pp.11-14.

87. Banarjee N.R. et al. 1959, *op.cit.*, fig. 38, p-37.

88. Krishnaswami V.D. 1957-59, "Excavations at Kunnattur, District Chengleput", *IAR*, p.37.

89. Ahmed K.M. 1940, *Preliminary Excavations at Prehistoric Sites near Janampet*, pl.4, p.3.

90. Murty P.R. 1965-66—An unpublished report.

91. Suryanarayana Raju J. 1977-78, *ARDA & M, AP*.

92. Gururaja Rao, B.K. 1972, *op. cit.*, p.266.

93. Rivett Carnac J.H. 1879, "Prehistoric Remains in Central India", *PASS*, pp. 1-16.

94. Deo S.B. 1970, *op.cit.*, fig. 26, No. 32, PL.XIV, p.49.

95. Rivett Carnac J.H. 1879, *op.cit.*, pp.1-16.

96. Gururaja Rao B.K. 1972, *op.cit.*, p.266.

97. Deo S.B. 1970, *op.cit.* No. 21-25, p.48.

98. Thapar B.K. 1961-62, "Excavations at Junapani, Dist. Nagpur", *IAR EILVA*, p.32-33.

99. Banarjee N.R. et al. 1959, *op.cit.*, p.36.

100. Wheeler R.E.M. 1947-48, *op.cit.*, fig. 36, No. 10.

101. Rea, A. 1902-03, *op.cit.*, PLIV, No.20.

Similar crossed fasteners, with casing but without the adze blade, were found in the same level in other trench at Peddabankur.

Mention may be made of two battle-axes (*Parasu*) (Fig. 5) from a cist burial at Kadambapur and a pit circle at Pochampad. The Kadambapur axe resembles a mushroom in shape with a convex cutting edge of 28 cm. length. The concave butt-end was possibly hafted to a clefted wooden handle with metal rings above and below to prevent the wood from splitting. The axe from Pochampad has a convex cutting-edge and flat butt-end. Battle or double-headed axes of iron are very rare, but bronze or copper were previously recorded at Dunria¹⁰², Gungeria, Sarthouli and Hallur. One miniature axe from Hallur¹⁰³ has a splayed-out cutting-edge and narrow convex butt-end. The other axe looks like a brooch or bow.

Sickles were found in many of the Megalithic burials such as at Pochampad, Brahmagiri¹⁰⁴, Sanur¹⁰⁵, etc. They were also reported from Nilgiri Hills¹⁰⁶ and the burial urns at Adichanallur and Perumbair.¹⁰⁷

In the recently excavated cist burials at Peddamarur a screwed nail, possibly used as a drill bit, was recorded, the purpose of which is intriguing. A few perforated pots in the excavation may indicate that the drill-bit might have been used for perforating the pots. It might also have been used for trepanning but there is no evidence as such. It is a long thin wire of iron with the body cabled or screwed. Analogies of such drill-bits come from Takalghat,¹⁰⁸ Adichanallur and Jadigenahalli.

Two mattocks (adze-cum-axe) without shaft holes, found in the Megalithic occupation level at Polakonda in Warangal district (Plate 45; Fig. 6), were perhaps hafted with a clefted wooden handle at the thin portion in the middle. A mattock of copper found at Mohenjadaró has a shaft hole. Mackay¹⁰⁹ was disinclined to accept it as a product of Indus Valley culture, it being the only socketed implement found there. He preferred to regard it as of later date perhaps even as late as Kushana period. As such the mattocks of Polakonda most

102. Gordon D.H. 1960, *Prehistoric Background of Indian Cultures*, fig. 17. Nos. 11, pp.136 and 191.

103. Nagaraja Rao M.S. 1971, *op.cit.* fig.25, p.90

104. Wheeler R.E.M. 1947-48, *op.cit.*, p.260

105. Banerjee N.R., et al 1959, *op.cit.* p.38

106. Foote B. 1916, *Prehistoric and Proto-historic Antiquities, Catalogue Raisonné*, Pl.XVI, No. 880-881, p.78

107. Rea, A. 1902-03, *op.cit.* p.17.

108. Deo S.B. 1970, *op.cit.* fig. 26, p.50

109. Mackay, E.J.H. 1938, *op.cit.* pp.4-7

probably be the earliest specimens. At Peddabankur it was noticed that, for the first time, the shaft holes were provided for the adzes, as no axe with a shaft hole was found either in the Megalithic or later level. All the axes from Peddabankur are flat celts.

The other interesting and unique object is an inverted trident (Fig. 7) from Pochampad with a projecting spike or spear-head at the top. The weapon was to be carried in the reverse direction so that the projecting spike of the central massive rod acted like a spear while the side prongs as a shield. This is a unique object with no known parallel so far. At Yeleswaram¹¹⁰ in a pit burial an iron lance was found with four spikes at the butt-end, which probably served a similar purpose. Common tridents with long shafts were found at Adichanallur, Raigir, etc.

C. Copper Objects

Copper or bronze objects are rare in the Megalithic burials of the Karimnagar region. They are found only in the form of ferrules or casings for weapons like daggers, bells, cups, or ferrules of walking sticks. In a cairn circle at Moulali¹¹¹ a copper bell, with an iron tongue, which was still *in situ* and movable, was found. In the further excavations conducted by Yazdani¹¹² a metal cup (79 per cent copper, 21 per cent tin) was discovered at the northern extremity of a cairn circle. Another find was a fragmentary copper bell. A copper bell was also reported from Khapa.¹¹³ At Hashmatpet¹¹⁴, Yazdani recovered 3 bronze articles, all of them being ferrules of walking sticks. A copper band, usually tied around the neck of a calf, came from Raigir.¹¹⁵

The other objects of copper consist of household utensils like bowls from Kunnattur¹¹⁶ and other places in Tamilnadu, and rattles, collyrium rods, bangles, rings, etc. used for ornaments, and toilet objects. From Khapa¹¹⁷ a dish, with convex sides and flat base and a lid, with a circular base and tapering sides, crowned with a finial depicting four birds, perching and facing each other, were found. Another dish, similar to the above but bigger in size, and a lid with a motif of four birds was also found. Deo suspects southern inspiration behind those motifs.

110. Khan A.W. 1963, *op.cit.* Pl.XIII B(a), p.48

111. Taylor M. 1851, *op.cit.* p.66

112. Yazdani G. 1915-16, *ARADN*, pp.8-9

113. Deo S.B. 1970, *op.cit.* fig.28, no.9, p.51

114. Yazdani G. 1934-35, *ARADN*, p.10

115. Hunt E.H. 1924, "Hyderabad Cairns and Their Significance" *JRAI*, Vol.XXIV

116. Krishnaswami, V.D. et al. 1957-58, *IAR*, p.37

117. Deo. S.B. 1970, *op.cit.*, p.52

D. Gold Objects

Gold objects were found in a few of the Megalithic burials. A pit burial at Kadambapur contained two spiralled ear-rings. At Nagarjunakonda (Meg. No. XIV) two spiralled ear-rings and 53 small cylindrical beads, 35 gold and 18 silver spacers were recovered. At Polichetty Cheruguda¹¹⁸ near Janampet a gold ear-ring, probably spiralled, was found from Cromlech-B, excavated by Kwaja Mohammad Ahmed in 1940-41. At Brahmagiri¹¹⁹ gold beads of disc and long cylindrical form, were recorded from pit-circles.

E. Beads

A variety of beads was noticed from the burials and habitational sites. These include beads of gold, silver, copper, semi-precious stones such as carnelian, jasper, agate, onyx, serpentine, lapis-lazuli, milky quartz, amethyst, glass, terracotta, shell, bone, etc. Beads of terracotta, annular in shape, are common from Kadambapur and Pochampad burials. Analogies occur at Brahmagiri,¹²⁰ Maski,¹²¹ Kesaraipalli,¹²² Nagarjunakonda,¹²³ etc. The Megaliths at Raigir¹²⁴ yielded 108 beads, 73 of which were of lapis lazuli, 15 of quartz crystal, 3 of milky quartz, 2 of granulite, one each of agate and jasper and two are of variegated jasper. Of them 59, had circular transverse section while the other 49 were not so. The graves at Moulali,¹²⁵ near Hyderabad yielded gold annular beads of large, medium and small sizes. While the small and medium-sized beads are of high quality gold, the three larger ones are whitish in colour due to the probable admixture of silver, added to producing the electrum.

Beads of several types were recovered from recent excavation at Poddamarur from the burials as well as Megalithic habitation levels. These include the beads of terracotta, horn, jasper, carnelian-etched quartz-crystal and fossilised shells. Also there are a few cylindrical glass beads, squarish in cross-section. The terracotta beads were tabloid and sometimes decorated with concentric circles, incised on the lathe itself. Beads of jasper are mostly spherical, and of dark green and brown hues. The carnelian etched and white painted beads are mainly of two types: one is a long barrel circular and the other is spherical. The long barrel

118. Ahmed K.M. 1940 *op.cit.*, p.13

119. Wheeler R.E.M. 1947-48, *op.cit.* p.266

120. *Ibid*, p.266

121. Thapar B.K. 1957, *op.cit.*, p. 108-110

122. Sarkar H. 1966, "Kesaraipalli, 1962" *AI*, Vol. 22, p.73

123. Raghbir Singh. 1975, *op.cit.* p.182

124. Beck H.C. 1930, *MAN*, Vol.III, pp.162-82

125. *Ibid*, pp. 168-171

type is decorated with double rows of chevrons, enclosed by concentric lines on either side. Identical beads are noticed at Sanur¹²⁶, Brahmanabad,¹²⁷ Brahmapuri,¹²⁸ Maski,¹²⁹ Sanganakallu¹³⁰ and Porkalam.¹³¹

The spherical carnelian beads are decorated with circles with dots in the centre. In all probability the circle with dots may represent the Sun, a symbol found in the Chalcolithic levels as well.

The other beads from Peddamarur burials are of hexagonal barrel shape, made of quartz crystal and recovered from both the habitation and burials. Identical beads were reported at Prakash¹³² in the iron age context.

Origin of Megaliths

The problem of the origin of Megaliths is still elusive and the inferences drawn by various scholars are hypothetical. Some writers have claimed that the black and red ware pottery, with which the Megalithic culture is invariably associated, is homogeneous, owing to a common origin and the folks who made this were also responsible for the introduction of iron either in the Gangetic plains or in the Peninsular terrain. These folks are often identified with the Dravidians, who moved from their nucleus in the Rajasthan area, the Banas Valley or from the Ganga-Jamuna doab. Either before or after their exodus to the south, they picked up the Megalithism and iron technology.

Banerjea¹³³ suggested that, apart from the basic divergence in shapes and fabrics of the ware and chronological levels which have yet to be fully worked out, it should be emphasized that pottery alone did not form a culture. The other concomitant elements have to be assessed and it would be preposterous to speak in terms of a single black-and-red ware culture.

There are certain striking similarities in colour, shape and fabric between the Chalcolithic and the Megalithic black-and-red wares. But Sankalia¹³⁴ argued that the problem of the black-and-red ware was not so simple as to superficially compare the types and fabrics from

126. Banerjea, et al. 1959, *op.cit.* p.40

127. Dhikshit M.G. 1947, *Etched Beads in India, Deccan College Series 4, Pl.X, No.22*

128. *Ibid.* plate No. III-15

129. Yazdani G. 1936-37, *ARADN, Pl.XII(a)*

130. Subba Rao, B. *op.cit.*, Pl. XVIII, No. 6

131. Thapar B.K. 1948, *AI, Vol. 8, p.14-15*

132. Thapar B.K. 1964-65, *op.cit.*, p.113

133. Banerjea N.R. 1965, "Iron Age in India", p. 226

134. Sankalia H.D. 1962, *Prehistory and Proto-history in India and Pakistan*, pp.281-282

different places. Following Haimendorf¹³⁵, Subba Rao¹³⁶ suggested that the black-and-red ware, being the distinctive ceramic type of the Megalithic folk and their dense distribution in the Deccan and the South, might strongly speak in favour of a Dravidian origin, the inescapable inference would be that the black-and-red ware was a Dravidian ceramic. In Bikaner, Rajasthan a plain variety of black-and-red ware was found, associated with the painted grey ware. This would imply the archaeological evidence of the coexistence of the Dravidians and Aryans in the primary habitat of the Aryans in India. Subba Rao further argued that the Dravidians must have moved eastwards and southwards and had put an end to or succeeded the Chalcolithic folk, and in the meanwhile, having imbibed the Megalithism and iron technology, had ultimately established themselves in the South.

Camil Zveibelil¹³⁷ of Czechoslovakia argued that the proto-Dravidians lived somewhere between Nubia and Iran from where they migrated to the India-Pakistan sub-continent, either before the development of the Harappan civilization or together with its mature phase. The Dravidians lived together with the Harappans and used the black-and-red ware pottery and became acquainted with the Harappan symbols of writing, which they might have also used. Later between 1200-800 B.C. they lived with the Aryans who used painted grey ware. They moved away from their habitat, lying along side the Harappans during the above period, towards the east and south-east and adopted the iron metallurgy in Central India. They also picked up some of the burial practices from the Harappans or the Deccan Neolithic people and architecture from the Megalithic by some contact with the mediterranean region.

Guru Raja Rao¹³⁸ suggested that the iron-using culture, with its Megalithism, arrived on the borders of the sub-continent and because of the great advantage of the iron technology to their economy, it was adopted immediately during the last phases of their existence by the Chalcolithic people, living in the upper Yamuna basin, Western and Central India.

We have two strains of cultures: one is the black-and-red ware, associated with iron, as found at Ujjain, Nagda, etc. in the Malwa region and, secondly the painted grey ware, associated with black-and-red ware and iron as at Attranjikhara in the Yamuna valley and Noh

135. Haimendorf C.V.F. *Indo-Asian Culture*, Vol. II

136. Subbarao, B. 1963, "The Megalithic Problem of South India and the Dravidian Languages", *Silver Jubilee Volume. Transactions of the Archaeological Society of India*, pp.132-51.

137. CAMIL ZVELBELIL-1965, "Harappa and Dravidian, an Old Mystery in New Light", *New Orient, Prague*. Vol. IV, No.3, pp.65-67

138. Guru Raja Rao B.K., 1972, *op.cit.*, p.325

near Bharatpur. He argues that everything points to the adoption of iron in India from the Cairn burial folk of Beluchistan, about the later half of the 9th and early 8th century B.C.

The Megalithism also penetrated into India along with the iron but the Aryans, who were accustomed to the practice of the disposal of the dead by cremation, did not like the co-existence with the people who practised Megalithism. Satapatha Brahmana XIII.8, 2, (1), the work of the Aryans, looked upon the builders of the Megaliths with contempt and in despicable terms. A clash between the cults, in the above circumstances, was inevitable and the vanquished, ultimately drifted towards the south with their characteristic black-and-red ware, iron and Megalithism.

Guru Raja Rao further suggested that the reason for the non-occurrence of Megaliths between Karachi and the Deccan could be due to the absence of raw materials for the construction of Megaliths and manufacturing of iron tools. Secondly the black-and-red ware folk could not find a happy home in the midst of Chalcolithic people in the Gangetic basin and the Central Western India.

The black-and-red ware people, with a highly evolved and well-advanced iron technology, colonised the areas where plenty of iron ore and raw materials for the construction of Megaliths were available. Right from the inception the black-and-red ware people were subordinates, first to the Harappan culture in Sourashtra and later, in a secondary role, to the painted grey ware folk in the Gangetic valley and Chalcolithic cultures in the West-central India.

Dr. R. Subrahmanyam¹³⁹ suggested that a ceremonial burial custom appears to be purely of Indian origin, rather more precisely of Dravidian origin, and it is likely that the people with the above characteristic have adopted a few peripheral traits, which appealed to their imagination. The West Asian contacts, either maritime or otherwise, must have influenced those who were already accustomed to some sort of ceremonial burial. Thus the port-hole in the cist burial, possibly a Western innovation, appealed to the imagination of a section of the Megalithic builders, who readily adopted the same.

Daily Life of Megalithic Folk

The Megalithic period of South India represents a distinctive culture, which succeeded the primitive Neolithic-Chalcolithic culture. Important distinctions are noticed between the two cultures, the former being mainly the work of the proto-Australoids, while the latter of the Brachycephalic groups of people. There was a sudden jump from the

139. Khare M.D. 1976, *op.cit.* p. 202

crude stone-axe blade culture to a vigorous and dynamic iron culture, with an array of weapons, tools and finely-polished wheel-made pottery. Whether it was a sudden cultural conquest or a slow evolution, the distinction is clearly perceptible. The new culture spread rapidly and extensively in the peninsular India, particularly in the Deccan and blossomed into a mode of life with basic unity.

The repertoire of the traits of the above culture is often designated as the Megalithic culture, and the entire span of its existence as the Megalithic Period. It is really a misnomer to designate a culture from the mode of burials, but our present knowledge of the social set-up during the period is so scanty that we do not have any other alternative.

Location of the Sites and Settlement Pattern

The location of the Megaliths could be traced in the areas of certain geological and climatic conditions. The burials are invariably noticed over rocky high-grounds, unfit for cultivation and in close proximity of hillocks or a source-like irrigation tank. The needs of cultivation might not alone have dictated the situation of the burials, but the availability of raw material at hand for building such elaborate monuments might be the other inspiration. The Megalithic burials at a few places, noticed in close proximity of the irrigation tanks or perennial rivers and arable lands may not lead us to presume that they were agriculturists. Nowhere in the vicinity of the burials or the irrigation tanks, their habitations were noticed. They lived far away from the burials but carried their dead to a place where plenty of stone was available. There is no evidence to show that they have cultivated the arable plains in the vicinity of their burials. Besides the raw materials for the tombs, the availability of iron ore and other geological factors might have had a definite bearing on the location of their colonies.

In many cases no habitation was found near the burial site. The burials at Kanukula near Sultanabad were situated over plains of red sandy silt. The passage chamber tombs at Peddamarur, lying over a rocky mound, are 3 km. away from the habitation. There is no irrigation tank nearby, but the river Krishna is about a kilometre away. Even at Uppalapadu, where many hundreds of Megalithic tombs exist, no habitation was noticed. At Kolakonda in Warangal district, the cemetery is situated over fertile plains of red soil, which is now under active cultivation. The habitation pertaining to these burials is traced about 3 km. away, situated between a granite hill and a rivulet. At Polakonda in Warangal district, the burials are situated over plains of sandy silt and about 1 km. away from the habitation. Sundara¹⁴⁰ observed that it was not clearly borne out by the available

140. Sundara A. 1975, *The Early Chamber Tombs of South India*, p. 217

evidence that these people clustered near some water-flowing hilly valleys for the purpose of raising irrigational tanks.

Architecture

Domestic

Our knowledge of their domestic architecture is restricted to the evidence unravelled by the excavations at a few habitation sites. Mention may be made of Brahmagiri, Sanganakallu, Maski and Kunattur. In the Karimnagar region, we have evidences from sites like Peddabankur, Kolakonda, Polakonda, Budigapalli, Yelawaram and Peddamarur. Nowhere permanent structures were noticed.

In Hallur¹⁴¹, a part of lime-plastered floor was discovered in the overlap phase. At Brahmagiri¹⁴² and Maski¹⁴³, no stone walls were found associated with this culture; occasional post-holes indicated timber construction for domestic buildings. In the excavation at Payampalli¹⁴⁴, the floor of a house was made up of stone chips, covered with morrum and plastered with lime. Occasionally a rubble flooring was also provided at the periphery of the house. The plans of the buildings were either circular, oval or oblong and the house consisted of a single room, but in one case two rooms.

At Peddabankur a number of elliptical structures exposed in the lowest strata, are assigned to the Megalithic period in view of the associated characteristic finds such as pottery, beads, iron objects, etc. About 10 m. away from a Satavahana Brick Enclosure towards north, an elliptical rubble structure, with a single entrance of 1.15 m. breadth and facing north, was exposed. The orientation of the structure is in the east-west direction and measured 10.35 m. long and 7.65 m. broad, including the thickness of the wall, which is 40 cm. In the middle there are four circular rubble basements, each 50 cm. in diameter. Also at the western end, inside the building, there are four more circular basements (Plate 46).

One more elliptical structure, noticed inside the 3rd Satavahana Brick Enclosure, and not related to it, measured 10.25m. long and 5.25 m. broad with a one metre broad entrance facing south. The flooring in front of the entrance was rammed with hard morrum to avoid slush. Many such elliptical buildings were discovered in the course of excavation

141. Nagaraja Rao, M.S., 1971, *op.cit.* p.203

142. Wheeler R.E.M., 1947-48, *op.cit.* p.203

143. Thapar B.K. 1967, *op.cit.* p.15

144. Rao, S.R. 1967-68, "Excavations at Payampalli, District North Arcot," *IAR* pp.26-29.

at Peddabankur which must have been used for both religious and habitation purposes (Plate 47).

The recently conducted excavation at Peddamarur revealed, in all, six habitation levels. These levels from the earliest to the end of the fourth, were found to be coeval with the Megalithic phase. The post-holes, noticed in many trenches, may indicate the nature of construction of the residential houses during the period of the earliest occupation. The houses must have had only mud walls and covered by some thatched roofs, supported by wooden posts. Though, plenty of shale slab were available and there is evidence of their knowledge of its quarrying as shown by the cist burials, where mostly shale slabs were utilised, the same was not used for either the walls or the pavement of floors, which were rammed with the earth only during the second phase. In the third phase they were paved with shale slabs and a little more maturity could be found in the fourth level when the floors were rammed with kankar and had them paved with shale slabs. Even during the succeeding Satavahana period, the shale slab was used only for enclosure walls. No plans of houses raised with either stone or brick are noticed.

Sepulchral Architecture

As in all the early cultural contexts, the geological factor has a definite bearing on the Megalithic constructions. With the knowledge of iron technology and its functional application for all diurnal activities quarrying of stone was a recurrent activity. The Megaliths were invariably built of locally available stone and sometimes transported from far off tracts. When granite was not available for the erection of boulder circles they made use of conglomerate or shale slabs. In the lateritic regions, they carved underground cells for burying their dead. When no suitable stone was available, they made use of terracotta urns. The entire burial site at Tenneru consisted of only sarcophagi burials in the shape of bath tubs. But at Agiripalli the granitic cist slabs were brought from elsewhere to the burial site. The locally available charnokite-khondalite stone was only used as cairn packing.

The huge cap-stones and massive stone blocks, used for alignments or menhirs, may indicate the existence of organised mass manual labour for transporting and hoisting them.

Economy

Agriculture and, to a lesser extent, hunting formed the main basis of their economy as attested by sickles and ploughshares. Various scholars have suggested that the Megalithic folk were responsible for the introduction of advanced methods of agriculture, based on irrigation. Most of the burial sites are noticed in the proximity of large irrigation

tanks as at Budigapalli, Toruru, Kanukula, Kadambapur, Polakonda, Rajagopalpetta, Ramunipatla, Kethireddypalli, etc. These tanks must have supplied drinking water to their household and as well for sustaining their crops. It appears that rice and ragi served as their staple food, as noticed at Hallur,¹⁴⁵ Coorg¹⁴⁶ and Kunnatur¹⁴⁷. Hunting supplemented their food supply as indicated by the equipment such as the arrow-heads, spears, lances, javelins, etc. They domesticated a variety of animals such as sheep, goat, swine, fowl, tortoise, cattle, etc. They resorted to roasting of animals for consumption. The carcass was thrown into open fire which cooked the flesh and roasted the bones. Sometimes the cattle and the sheep were probably killed as offerings. In Pochampad¹⁴⁸ and Yeleswaram¹⁴⁹ many bones of the above species were found in the burials.

The food habits of the Megalithic folk at Peddabankur demonstrated that cattle mainly formed part of their diet. The dog, wolf, hyena and horse were known to them. Their knowledge of horse and its use are attested. The skeletons of horse, found in their burials at Pochampad and Muktyala, may indicate that the animal had a special place in their daily life. Many contemporary paintings depict the horse with riders. In a painting from Budigapalli the figure of a horse depicted with stripes over its body like a zebra. The figures of bull in paintings, in terracotta figurines (Pochampad) and its skeletal remains in habitation sites are proofs that it was regarded as a sacred animal. Bison or buffalo was possibly used as draught animal besides as a source of milk.

Pottery was the other important adjunct in their daily life. It comprised mainly 4 types of fabrics; the red-and-black, the all black, red, and matt red or coarse red. The vessels of these fabrics are mainly of two varieties, highly burnished and unburnished. The black-and-red ware vessels were produced by a technique probably of inverted firing. Most of the pottery was wheel-made, while the sarcophagi were hand-made. The black-and-red ware, the all black ware and red wares are usually made of very fine, levigated clay. But when they are kept under wet conditions for a long time they usually wither away. Particularly this is the case with all black ware potteries, possibly due to illfiring. The texture of most of these vessels appear uniformly grey. Typological distinction between

145. Vishnu Mitre, in Nagaraja Rao, 1971, *op.cit.* pp.125-132

146. Cole R.A., 1869, "Memorandum on the Cromlechs Found in Coorg" *P.A.S.B.*, pp. 54-59

147. Krishnaswamy V.D., et al. 1957-58, "Excavations at Kunnatur, District Chingleput", *IAR*, p.37

148. Alur K.R. 1972, "Report on the Animal Remains from Megalithic Burials of Pochampad," *APJA*, Vol. I, Part II.

149. Alur K.R. 1972, "Report on Yeleswaram Animal Remains from Megalithic Burials", *APJA*, Vol. I, Part II.

the domestic and sepulchral ceramics is commonly noticed as also many regional variations in the burial pottery. The gourd-shaped flask is common in the north-western parts of Andhra Pradesh, which is totally absent from the other regions. The funnel-shaped lid is a common type which is sometimes round or truncated. The most common types are dishes, ring-stands, globular vases, bowls, carinated bowls and such others.

Some post-firing scratches of linear designs called graffiti are found in the exterior of the pottery. The significance of the graffiti cannot be satisfactorily explained. They were probably incised with a pointed instrument on the pot surface after the pots were fired. They occur on different varieties of the pots, associated with burials or habitation. Foote¹⁵⁰ suggested that they represented the ownership marks. The practice of scratching the individual graffiti on the pots to be suspended to the palmyra trees for drawing-out toddy is still in vogue in the Gouda community in Andhra Pradesh. Yazdani¹⁵¹ collected as many as 131 such marks and linked the origin of the Brahmi script with them and further identified several of the marks to the Etruscan alphabet and also showed some similarities with the signs used by Cretans, Aegeans, etc. Lal¹⁵² proved in his recent study that 89 percent of the Megalithic graffiti marks go to the Chalcolithic and Harappan times, which included some alphabets and auspicious symbols such as Swastika, the endless loop, square with loops at the four corners and endless triangles. Most of the auspicious symbols continued in the Satavahana and later periods.

Iron Objects and Technology

The iron objects were used for agriculture, hunting and day to day household needs. The evidence of iron smelting is provided by enormous deposits of iron slags. Number of ancient iron working spots were located in Karimnagar region at Regonda, Tellakunta etc. At Tellakunta in Peddapalli taluk, structures found in plan with plenty of slag and nodules of calcium carbonate, noticed at the top of some hills, is a clear proof of ancient iron smelting. The entire hill range is scattered with iron ore. Below the hills is a huge tank banded up for storing water to be used for iron smelting. At Yapaldevpadu in Mehaboobnagar district there are several clay furnaces to a height of one to one and half metres having blast holes with diameters ranging from 15 to 20 cm. These were noticed all along the bank of the river Krishna at the water edge. A thick layer of calcium carbonate, deposited over

150. Foote R.B., *Catalogue of Prehistoric Antiquities* (Madras, 1901), Pl. XVII

151. Yazdani G. 1917, *Journal of Archaeological Society*, pp. 56 to 63

152. Lal B.B., 1960, "From the Megalithic to the Harappa; Tracing back the Graffiti on the Pottery". *AI*, Vol. 16, p.21

some of these furnaces and iron slag nearby, may indicate that these were used as blast furnaces.

Munn¹⁵³ has suggested that the prehistoric man in peninsular India had no alternative, but to use fairly high grade iron ore for his hearth-stones. He believed that iron technology had developed indigenously but was not transmitted to India from Egypt or elsewhere. He suggested that the constant play of carbon monoxide gas on the iron stones, used for kilns for burning pottery, etc would, in course of time, have the effect of making them malleable and thus, he believed, would be the most probable means of discovering iron smelting.

Iron ore is extensively found in various parts of the state in almost all the formations from Dharwar upto the Deccan trap laterites. The local iron and steel industry of Nirmal in Nizamabad district assumed importance even during the proto-historic times. The iron stone found in Armoor is of high grade and the blades made of Kotasamudram steel were once famous for their strength. The Karimnagar region was probably visited by the Persian traders at the time of Voysay for this steel as the Indian 'Wootz' was known throughout the world. Iron ore extensively occur in the ferruginous quartzites in Armoor¹⁵⁴ in Nizamabad district; Nirmal and Laxetipet taluks of Adilabad district and broad stretches of Chikiyala bed in Sirpur taluk of Adilabad district constitute an extensive source of iron ore. Local smelting of iron is still carried on in the villages in the neighbourhood of Chikiyala iron hills.

Ornaments of the Megalithic Folk

The ornament repository of the period includes beads, bangles, rings, ear ornaments, and diadems of various metals. The beads were made of different materials, viz. terracotta, semiprecious stones like carnelian, jasper, agate, quartz-crystal and other materials such as shell, horn, ivory, gold, silver, copper, etc., and rarely glass or paste. The annular terracotta beads, with a big perforation in the middle, are universal in the Karimnagar region as at Pochampad, Kadambapur, and Budigapalli. Apparently, these could be used as ear ornaments rather than as beads. At Peddamarur, beads of etched carnelian, rock crystal and glass are found.

Many bottom-cut conch shells, noticed at Kadambapur near the lower arms of a skeleton in Meg. 3, were obviously used as bangles. Some of the shell ornaments, found among the Megaliths, are similar to those in use among the Angami Nagas and other Naga tribes inhabiting the Naga Hills district of Assam. This similarity led Hutton¹⁵⁵ to

153. Munn L. 1934. *The Journal of Hyderabad Geological Survey*, Vol. 2, part I, p.321

154. Mirza Qursheed. 1937. *Hyderabad Geological Series Bulletin*, No.12, p.35.

155. Hutton J.H. 1921, "Angami Nagas", p.23

Hutton J.H. 1926, Naga Chank Ornaments of South Indian Affinities; *MAN* Dec. 1926, pp. 220-224

believe that the Nagas contain an element which migrated from South India. Two gold spiralled wires on either side of the skull, also at Kadambapur, may show the poverty of skill in making ornaments with precious metals, as also their availability.

Art and Symbols


The artistic skill of the Megalithic people is well displayed in many of the rock paintings. The recently discovered paintings at Budigapalli, Regonda, and Keihavaram and the rock brusings at Mudumala might be the works of these people.

The paintings at Budigapalli consist of several horse riders, one of these horses looking like a zebra. Behind these horsemen there is a standing figure carrying a spear in his right hand and the left arm akimbo.

In the group noticed at Regonda two little men ride a disproportionately big horse. There are also tridents bisecting a circle below and simple tridents without circles. Several such tridents bisecting circles below were indented on the orthostats of some Megalithic cist burials at Chagatur. Further, at Mudumala, a village in the Mukthal taluk of Mahboobnagar district, where the existence of alignments was reported, the rock brusings contained many identical figures of tridents on circles besides linear representations of a Mother Goddess and a bull

[Plates 13 (e) and (f)]

The endless loop or knot, an auspicious symbol, could be seen on the Chagatur cist burial (Fig. 8). The endless knot was first noticed on a Harappan seal¹⁵⁶ of the late period. A copper tablet with a similar symbol was excavated by Mackay¹⁵⁷ from DK. Area of Mohenjodaro [D. Section (2)]. Coming to the historical period an identical symbol occurs on a terracotta stamp at Taxila¹⁵⁸ ascribed to the early Christian era. The same intertwined knot-design appears during the rule of Rashtrakuta kings in Gujarat region.¹⁵⁹

The second symbol is a square with the intersecting lines at the corners terminating in loops. In a button-shaped seal of garnet found at Peddabankur the symbol  is found with an inscription reading 'KA MA SA' in the typical Asokan Brahmi characters.

An analogous symbol was incised over a red ware globular pot, recovered from a Megalithic cist burial at Kadambapur. Interestingly the same is found over a painted lustrous-red ware pot at Ranga-

156. Marshall J. 1931, *op.cit.* Vol. III, Pl. CXVIII, No. 5, Described in Vol. II, p. 400.

157. Mackay J.E. 1937, *op.cit.* Pl. XCIII, No. 4, p. 364.

158. Marshall J. 1951, Taxila, Vol. II, Pl. 204, p. 437.

159. Sarkar H. & Pande B.M. 1960-70, "A Note on a Knot-design from Mohenjodaro", *Puratatva*, pp. 44-47.

pur¹⁶⁰ and a black-and-red ware pot at Navadatoli¹⁶¹, both in the Chalcolithic context. The Navadatoli specimen has two squares with loops at the corners, projected one over the other, so that the loops of the one sandwiched between the two loops of the other, there by consisting of 8 loops in all. The above two symbols are noticed in the rock paintings at Kethavaram in Kurnool district.

In all likelihood, the so called Ujjain symbol with four circles connected by a cross, also a Navadatoli pot-design, must be identical with the above symbol. The Ujjain symbol was sometimes identified as representing four oceans connected by a cross. Then what could be the meaning of the eight circles or loops?

In Sumerian mythology we find a mention of four directional winds. It is more likely that the circles represent the four quarters but not the oceans and the eight loops represent the eight quarters presided over by the eight *Dikpalas* viz. *Indra, Agni, Yama, Niruti, Varuna, Vayu, Kubera* and *Isana*. The above symbol, still in vogue in some parts of Andhra Pradesh, is decorated as Rangavalli especially on the spot where at Hindu marriage is held. It may be a symbol to invoke the eight guardian angels mentioned above.

The third symbol, a trident with a long shaft and bisecting a circle below, as already remarked, was found in the rock paintings at Regonda, the rock brusings at Mudumala and over the Megalithic cist burials at Chagatur (Fig. 8). At Peddabankur the symbol was stamped on many red ware pots in the Megalithic and later levels. In the Regonda type the trident bisects a circle below and installed over a box-like pedestal, still below the circle. The symbol noticed on Peddabankur pots consists of a trident, the side prongs carving inwards and having terminals like arrow-heads. The central prong is short and looks like a barbed arrow-head, the barbs projecting downwards on either side of the shaft. The central prong has a circular pellet in the middle. The circle below the trident metamorphosed into a circular pellet exactly in the middle of the barbed arrow-head. Sometimes the pedestal is decorated with stepped mouldings.

Coins of Megalithic Period

A mention, here may not be out of place, of the coins found in Wheeler's Chandravalli¹⁶² excavations. Two of them are of silver,

160. Rao, S.R. 1963, "Excavations at Rangpur", *AI*, Vol. 18 & 19, fig. 78, p. 131.

161. Sankalia H.D. et al. 1971, "Chalcolithic Navadatoli (the excavations at Navdatoli, 1957-59)", DCRI & M.S. University publication, ob. 274, No. 2 Graffiti design, p. 159, 233 Poona.

162. Wheeler R.E.M., 1947-48, *op.cit.* pp. 287-290.

of which one is a Roman Denarius and the other a rectangular punch-marked coin. Out of the remaining coins 43 were attributed to the Satavahana dynasty, while the 10 remaining coins to the feudatories of the same dynasty. The excavation exposed altogether 13 layers. Layer 13, 12 and 11 were attributed to the Megalithic culture and layers 10 to 3 to the Andhra culture. The coins belonging to Yajna Satakarni, totalling to 3 were found in strata 5 and 6. The coins of Sadakana Kalalaya Maharathi came from strata 7 to 9, below the stratum assigned to their overlords.

There are some uninscribed coins recovered from strata 9 to 7, many of which are from middle level, that is layer 8. These coins have on the obverse a trident with a circle below and two dots on either side of the circle. The reverse has a symbol of an endless knot, as found in the Megalithic context elsewhere, which is identified here as Srivatsa or Naga symbol, as a trident with a circle below and two pellets on either side and on the reverse an 8-arched hill, crowned by a crescent.

The so-called Nandipada symbol on the obverse and the looped design identified as Srivatsa are found very commonly in the Megalithic rock paintings and rock brusings. These coins were found in the lower levels than in those of the Satavahana or their feudatories or of the punch-marked coin. To quote the author¹⁶³ himself, "It is further worth noting that of a total of seventeen (17) uninscribed coins from the deeper layers 7 to 9 which also yielded the majority of the Maharathi coins". Thus the uninscribed coins are definitely earlier than the above two, and may belong to the Megalithic period. Coins bearing the legend 'Maharathi Madhariputa Sivala kura' and 'Kalalaya Maharathi' were found in the Kolhapur district of Maharashtra¹⁶⁴. Thus during the Megalithic period, atleast later part of it, this region, including the find-spot of the coins, were ruled by Maharathis or Mahathalavaras.

Religion

We are still in a lurch regarding the religious beliefs and objects of worship of the Megalithic period. Guru Raja Rao¹⁶⁵ most ingeniously suggested that the occurrence of trident or *trisula* and the *sulam*, the spike-like object in the Megaliths have acquired a religious significance among the later Dravidian-speaking Hindus of South India. The trident is invariably associated with Siva and other deities like Durga, etc. The single pronged spike, or javelin is very similar to the '*Vel*', the favourite weapon of Muruga or Skandha, another popular Dravidian deity.

163. *Ibid.*, p.290

164. Rapson E.J. 1908, *Brit. Mus. Cat. of Coins of Andhra Dynasty*, Pl. II pp. 14-15, 17-26

165. Gururaja Rao B.K. 1972 *op.cit.*, pp. 266

In the rock brusings at Mudumala there is a figure of probably Mother Goddess with hands outstretched and upraised and the legs stretched apart. This figure may be the forerunner of the Mother Goddess figurines of terracotta found in the Satavahana and later levels. The Mother Goddess figurines of the Ikshvaku period at Nagarjunakonda and Yeleswaram are similar to the above. Many Mother Goddess figurines found at Peddabankur are also ascribed to the Megalithic period. Interestingly none of the excavations in South India at the early historical sites yielded any object comparable to that of a Sivalinga which obviously lead to the surmise that the worship of Siva in the form of Linga was a late practice.

The orientation of the Megalithic burials either in the north-south direction or east-west direction is a positive indication that the people were sentimental about the directions and they must be worshipping the *Ashtadikpalas*. This view is corroborated by the occurrence of a terracotta buffalo figurine luted to a sarcophagus at Peddamarur, where all the cists with passages were oriented towards south. Buffalo is considered to be the vehicle of Yama, the God of Death whose antiquity can be traced to the R̥gvedic times.

T.N. Ramachandran¹⁶⁶ suggested that the Pasupathi seal of Mohenjodaro is the embodiment of the *Mahisha*¹⁶⁷ as well as of Mahadeva. In R̥gvedic times the *Mahisha* was considered to be the most superior of all the animals but later displaced by the lion in the Puranic age. The horse skeletons found in the Megalithic burials may indicate the prevalence of Vedic sacrifices such as *Asvamedha*, etc. At Muktyala near Jaggayyapet the skeleton of a horse was found buried in a passage chamber and its master in the main chamber. Shankara Sastry, who excavated this burial, suggested that it may be a case of *Asvamedha* sacrifice.

In one of the cist burials at Peddamarur an all black ware dish has a stamp of a solar disc with a radiating circle in the middle and enclosed by tongues of flame inside two concentric bands. This may indicate that they worshipped the Sun. The sarcophagus at Sankhavaram in Kurnool district resembled a ram which was considered to be the vehicle of *Agni*, the guardian of south-east. In Meg. III at Peddamarur a red ware medium-sized vase was placed exactly at the north-east corner. The pot has three perforations, one at the top and two below, and in inverted position it resembles the visage urns noticed in Swat (Gandhara) Valley graves. The north-east corner, presided over by Isana, is considered

166. Ramachandran T.N. 1956, Presidential Address; *Indian History Congress*, 9th Session, *Agra*

167. R̥gveda: IX, 96, 6 ("Brahma Devanam Padavi Kavimam Rishir Vipranam Mahisho Mriganam Syeno Gridhranam Svadhatir Vananam")

to be the place where Lakshmi resides (Lakshmīsthana). As such the visage urn in the burial may symbolise a Mother Goddess.

Racial Features

Many of the human remains from the Megalithic burials have been subjected to anthropometric studies. The human remains from Brahmagiri¹⁶⁸ came from five cist burials and one pit circle, the latter yielding 3 skeletons. According to Sarkar, the Brahmagiri Megalithic crania reveal an autochthonous Australoid type and more or less medium-statured mesocranial type which is designated as Scytho-Iranian.

At Maski¹⁶⁹, also studied by Sarkar, the human remains were distinguished as meso-brachycranial type, similar to the Brahmagiri crania and long-headed type, with thick and heavy bones and larger cranial capacity, which appear to be similar to the Al Ubaid type and which has also been found among the Lothal remains. A third type was characterised by smaller cranial dimensions and lesser cranial capacity which seems similar to the autochthonous Australoid type.

Raigir

Recently Kennedy studied 6 fragmentary skulls excavated by Hunt at Raigir and now lying in the British Museum, London. They indicated a Mediterranean physical type.

Yeleswaram

Gupta and Datta¹⁷⁰ studied 6 skulls and long bones and later Sarkar examined 13 skulls (9 belonging to Megalithic period). The presence of brachy-cranial element in these remains has been recorded as an indication of Scytho-Iranian affinity. They also correspond with the Sialk-brachy-cranial Group-IV.

Tenneru

The excavation at Tenneru was conducted by Prasad and the crania examined by Bhowmik and Ghosh¹⁷¹ of the Department of Anthropology, Calcutta University. Of the four skulls examined,

168. Sarkar S.S. 1960, "Human Skeletal Remains from Brahmagiri" Bulletin of the Dept. of Anthropology-9, pp.5-25, Calcutta

169. Sarkar S.S. 1972, Ancient Races of Deccan, p.123

170. Gupta P. & Datta P.C. 1962, "Human Remains Excavated From Megalithic Burials - Yeleswaram A.P." *Man in India*, pp.19-34

171. Bhowmik P.K. 1976, *Report on the Skeletal Remains from Tenneru*-unpublished

one was that of an immature female and the remaining three appeared to be those of adult males. One skull out of the adult group was identified as brachy-cranial and three skulls as dolico-cranial group, only one as having hyperdolico tendency.

Chronology :

Mortimer Wheeler¹⁷² suggested that the Megalithic culture could be dated to between 200 B.C. to circa 50 A.D. In arriving at this date range he considered the following points:

- (1) The preceding stone-axe culture, as represented by a later urn-burial, overlapped into the earliest layers of the Megalithic culture at Brahmagiri.
- (2) The terminal date was fixed by the commencement of Andhra Culture, dated on the basis of Roman coins, rouletted ware sherds, etc;
- (3) The duration of Megalithic culture was determined by 3 to 4 inches (7 to 10 cm). thick habitational accumulation for which a time lapse of about 2 centuries was allowed.

From a cist grave at Sulur¹⁷³, in Coimbatore district of Tamilnadu, a bronze coin was recovered and identified by Allan as Eran coin, minted in c. 3rd century B.C.

A coin of Roman Emperor Augustus (27 B.C. to A.D. 14) was found from a Megalithic grave in Coimbatore district.¹⁷⁴

Alexander Rea¹⁷⁵ found 17 urn burials below a subsidiary stupa at Amaravathi which in relation to the main stupa, has been dated to c. 200 A.C. But the date of the main stupa has been pushed back still farther on the basis of some fragments of an Asokan inscribed pillar.

A gold coin of Roman Avri, issued from Constantinople and assignable to the 4th century A.D., was found from a burrow in the Nilgiris.¹⁷⁶

We thus now have a date ranging between 3rd-4th century B.C. and 4th century A.D.

172. Wheeler R.E.M. 1947-48, *op.cit.* pp.200-202

173. Beck H.C. 1930, "Notes on Sundry Asiatic Beads," *MAN* XXX, p.178

174. Sevell R. 1904, "Roman Coins found in India, *JRAS*, Vol. II, p.623

175. Rea, A. 1912, "Excavations at Amaravati", *A.R.A.S.I.*, 1908-09, p.90

176. Hough J. 1879, *Letters on the Climate of the Nelliheries, London.*

We also have a set of Radio-carbon dates as follows :

<i>Name of the site</i>	<i>T.F.No.</i>	<i>Age (half value 5370)</i>		<i>Dates</i>
1. Hallur ¹⁷⁷	573	2905	100	955 B. C.
2. Hallur ¹⁷⁷	570	3055	105	1105 B. C.
3. Payampalli ¹⁷⁸	350	2330	105	380 B. C.
4. Kotia ¹⁷⁹	319	2200	105	250 B.C.
5. Halingali ¹⁸⁰	685	2030	100	80 B.C.

The evidence from the Tekwada¹⁸¹ burials in Khandesh is very significant. These burials have been assigned to Bahal I-B period on the basis of the funerary equipment recovered from them. The excavator traced 2 elements which are significant. The first is the presence of a Jorwe fabric pot in the Tekwada burials and the second is a conoid pot in the Megalithic black-and-red ware with graffiti. These two wares represent two distinct cultures: one the Chalcolithic and the other Megalithic but no Megalithic burials were known in the vicinity of Bahal or Tekwada. Thus the Bahal excavations indicated a cultural link-up of the Megalithic and the Chalcolithic elements, and the antiquity of the Megalithic culture was pushed back. The Late phase of Jorwe culture could be assigned to the earlier half of the first millennium B.C. The existence of the Megalithic element at Bahal and Tekwada in the region of East Khandesh was further confirmed by the find of Megalithic pottery from the surface explorations at Ranjala (IAR 1960-61).

The evidence from Vidarbha region, which is contiguous to north-western Andhra Pradesh, is very significant. The excavations at Pochampad and Kadambapur have proved that the burial furniture is more in conformity with that of Vidarbha. The excavation of stone circles in eastern Vidarbha at Takalghat, Khapa, Junapani and Mahurjhuri and evidence from the habitational sites at Kaundinya-pura, Paunar and Pauni gave further evidence to the extent and date of the Megalithic culture in that region. The micaceous red ware, which

177. Agrawal D.P. 1968, "Radio-carbon Dates of Samples from Southern Neolithic Sites," *Current Science* 35, No. 23, pp.585-86

178. *Ibid*, p.p. 585-86

179. Agrawala D.P. & Sheela Kusumgar, 1974, *Prehistoric Chronology and Carbon-dating in India*, p.142

Also refer K.S. Ramachandran "Chronology of the Indian Megaliths - Some Consideration, pp. 107-109, *Puratatva*-No.3, 1969-70

180. Agrawala D.P. et al, 1967-68, "Samples Submitted by Deccan College, IAR, p.71

181. Deshpande M.N. 1956-57, *IAR*, p.18-19

was common in the first habitation levels at Paunar, Pauni, Takalghat and Kaundinyapura as also in the stone circles at Junapani, Khapa and Mahurjhuri, indicates that there was a large-scale colonization by the Megalithic folk in Eastern Vidarbha in the pre N.B.P. period.

The Megalithic habitation at Takalghat¹⁸² was divided into 3 phases. The upper horizon of the mid phase was dated to between 555 B.C. and 597 B.C. This would push the 1st phase of occupation still further back by about a century or more, thence from the first Megalithic occupation at Takalghat could be assigned to around 7 to 8th century B.C., if not earlier. It became apparent that, in western Maharashtra and Khandesh, the Jorwe culture was in vogue; the Vidarbha region was under the cultural sway of the Megalithic people in the first millennium B.C.¹⁸³ Analysing the above information we may conclude that the Megalithism had a lease of more or less a thousand years.

182. Deo S.B. 1970, *Excavation at Takalghat & Khapa*, p.13

183. Deo S.B. 1973, "The Dating of Megaliths in Maharashtra", *Radio-carbon and Indian Archaeology*, pp.131-137



14 (a). Dolmen at Amarabad, Mahboobnagar District.



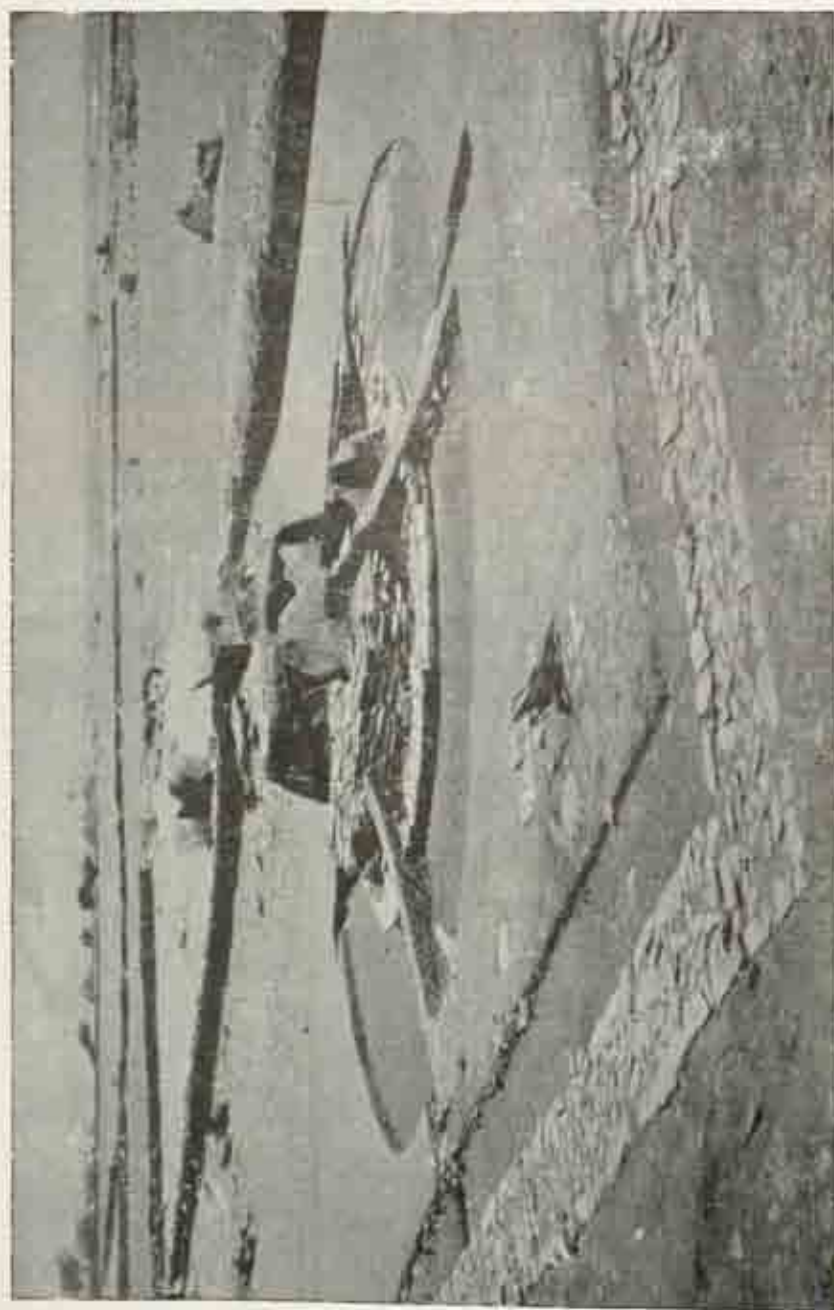
14 (b). Another Dolmen at Amarabad, Mahboobnagar District.



A Megalithic port-holed cist-burial, with a passage-chamber
from Uppalapadu.



Multiple cists found inside a Cairn-circle at Uppalapadu.



Cist-burial at Chagantur or a place where the dead bodies were exposed.



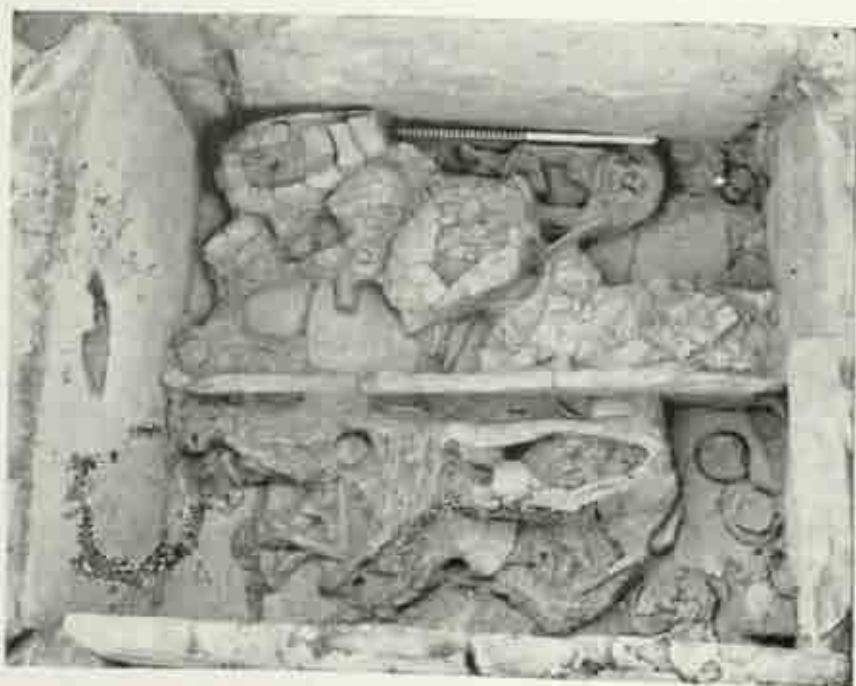
17(b). Nandipada, Endless-loop, etc. incised over a cist-burial at Chagatur.



18. Megalith I, showing 3 compartments with port-hole in the middle compartment leading to a passage-chamber, Peddamaruru.



19 (a). Megalithic II - General view of double-chambered post-holed cist-burial, Peddamaruru.



19 (b). Megalith II - A double-chambered cist-burial after excavation, showing 3 sarcophagi, Peddamaruru.



Megalith II - Chamber II - Sarcophagi inside a cist-burial, Peddamaruru.



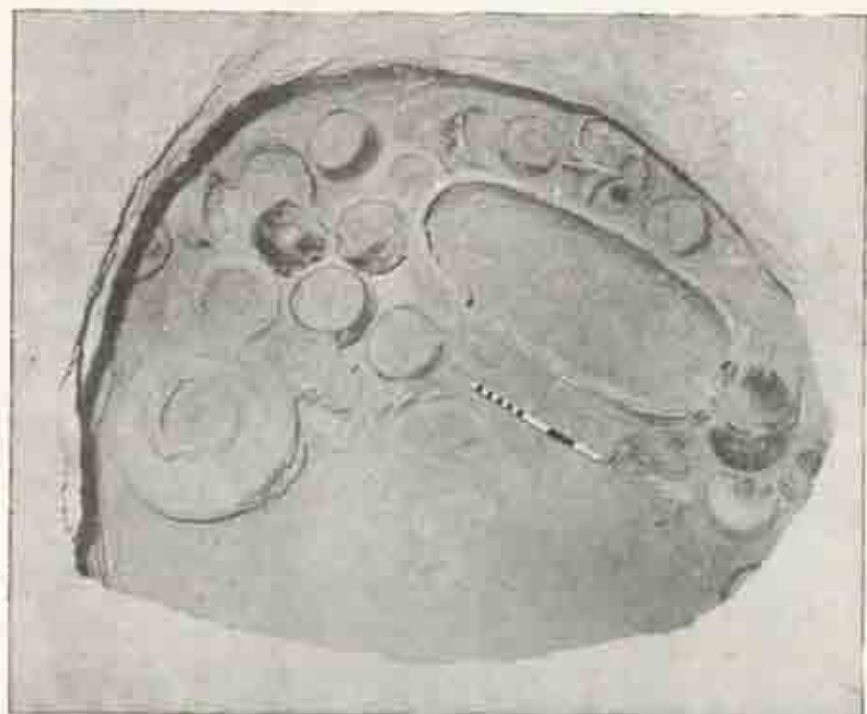
21 (a). Megalith III - A single-chambered port-holed cist-burial, Peddamaruru.



21 (b) Passage-chamber of Megalith III, showing the port-hole with door slab and skeletal remains inside the passage-chamber, Peddamaruru.



22. Megalith IV - A pit-circle with a door slab and passage towards south from Peddamaruru.



23. A rock-cut burial with sarcophagus at Jonnavada, Nellore District.



A sarcophagus with human skeleton at Tenneru.



25 (a). Two cist-burials at two levels—
A sarcophagus (damaged) is seen in the forefront, Agiripalli.



25 (b). Cist No. II in which 3 skulls are found, Agiripalli.



25 (c). A Sarcophagus from Agiripalli.



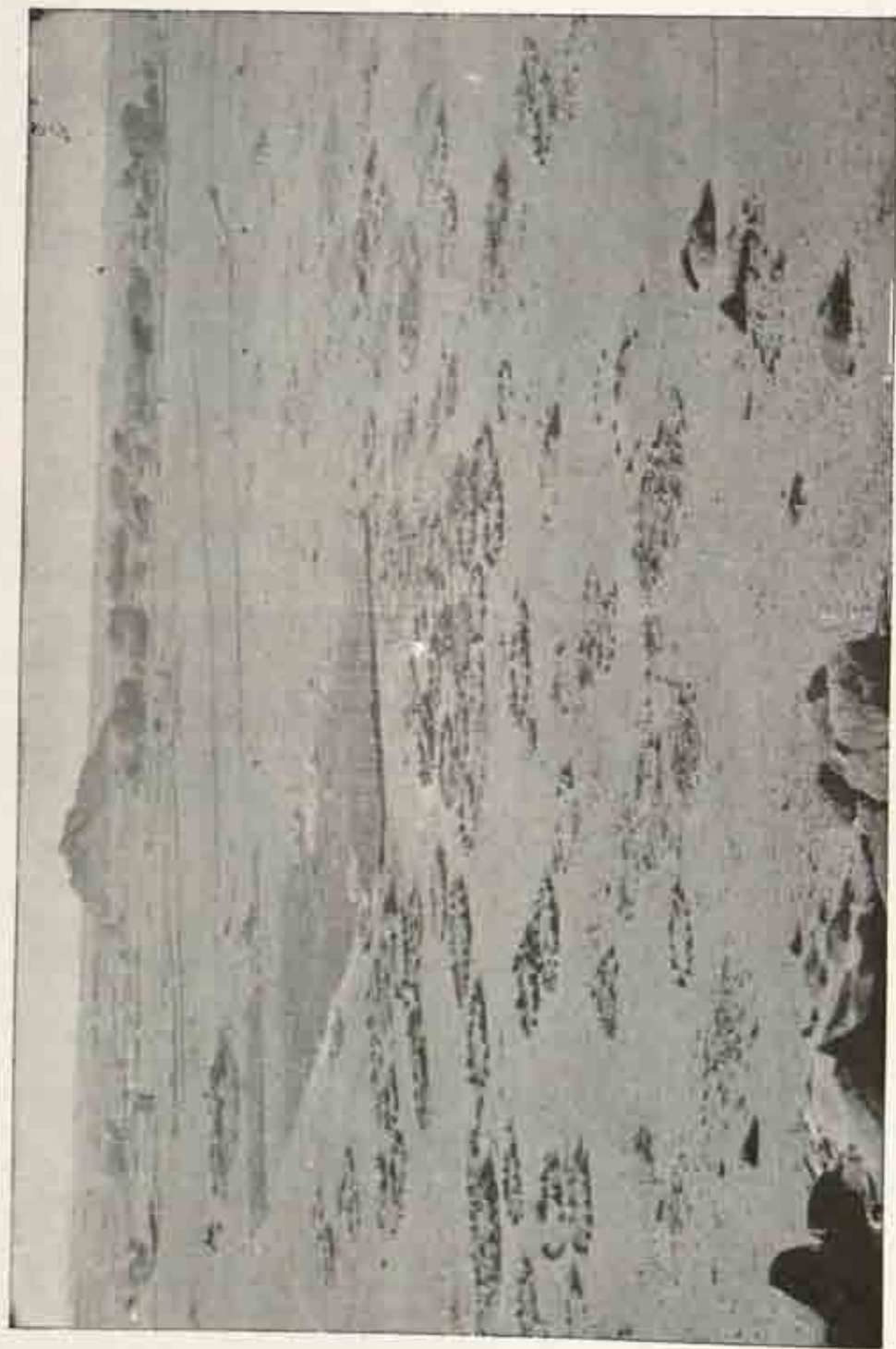
26. A Dolmen from Janampet, Khammam District.



27. A Megalithic Cairn circle of huge granite boulders at Polakonda.



28. Megalithic burials: Double Cairn-circles at Pochampedu.



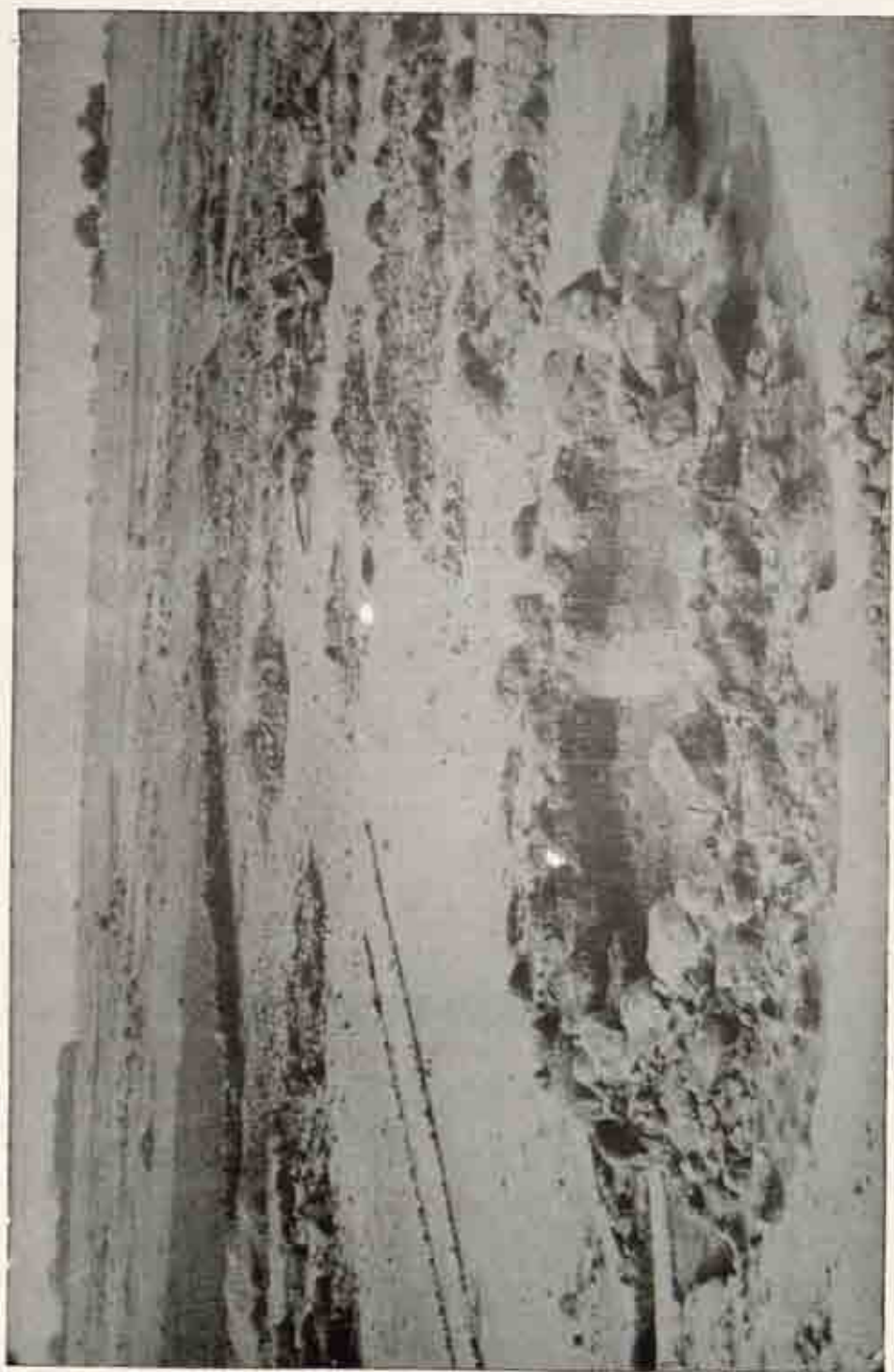
General view of the Megalithic burials at Kadambapur



Megalithic burial - I at Kadambapur.—Funerary Pottery at varied levels.



Megalithic burial II at Kadambapur.



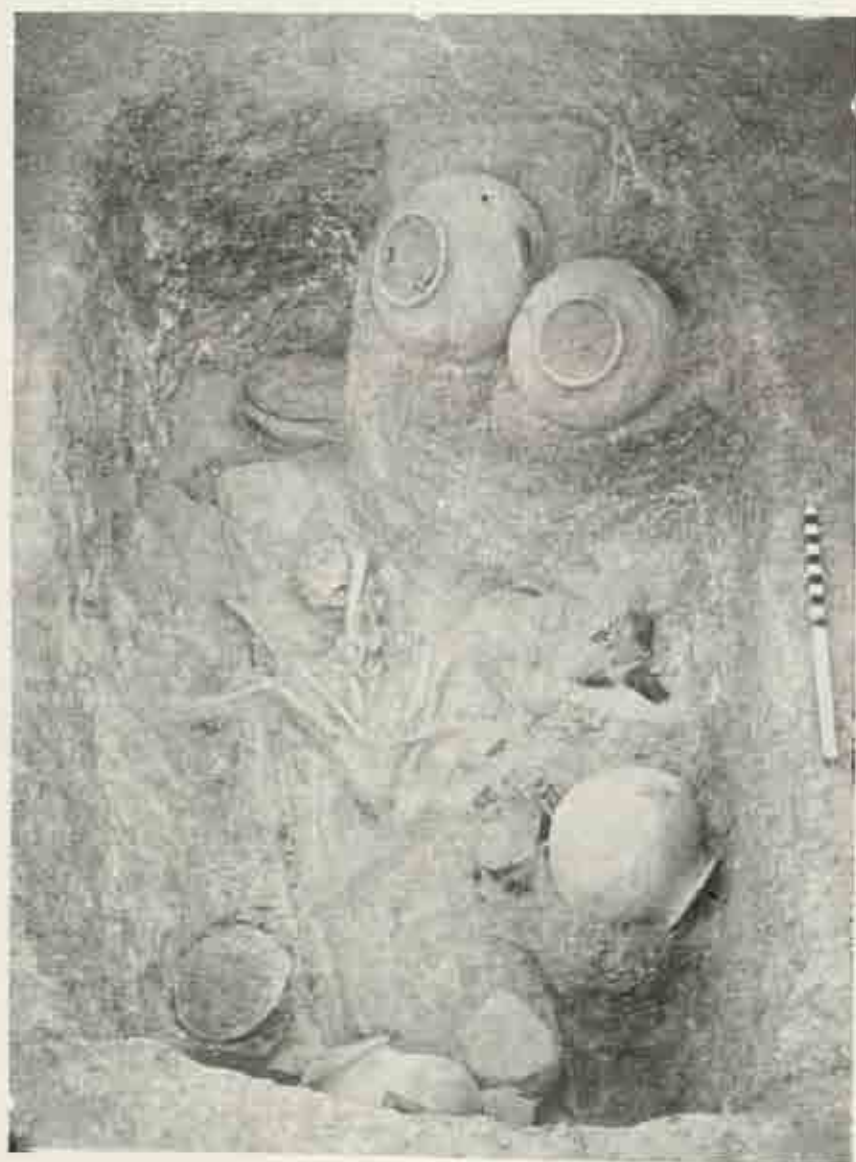
Megalithic burial III at Kadambapur during excavation.



Megalithic burial III, showing skeletal remains after removing
funerary pottery at Kadambapur.



Megalith IV - A port-holed cist, provided with a ramp to lower the skeletal remains into the cist at Kadambapur.



Megalithic burial - V at Kadambapur.



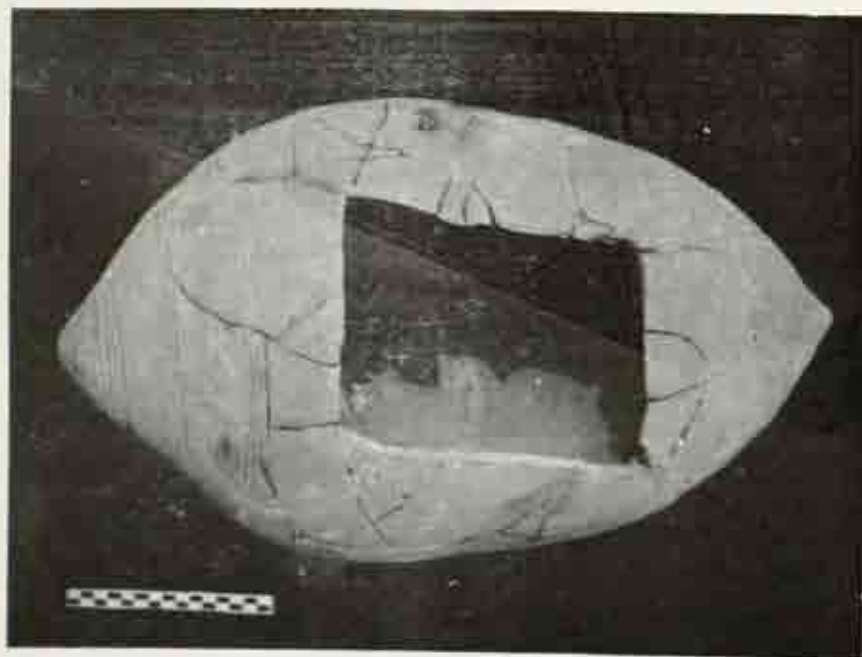
30. An urn-pot with three legs from Bayyaram,
Khammam District.



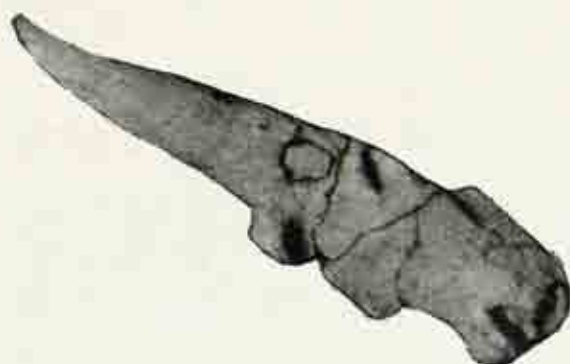
31. A sarcophagus from Maski.



32. Barrel-shaped pentagonal sarcophagus from Peddamaruru.



33. Fusiform sarcophagus from Peddamaruru.



Pl. 34. Terracotta figurine luted to a trough-shaped sarcophagus at Peddamaruru.

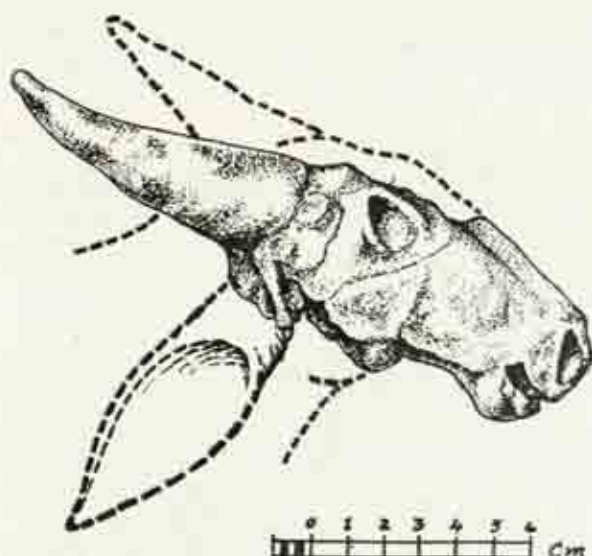


Fig. 3 Terracotta figurine resembling the horn of a buffalo (Drawing of the above figure)



Pl. 34. Meg. 1: Hand-made Terracotta buffalo found inside a cist-burial with passage chamber at Serupalli, Alampur Tlk, Mahboobnagar District.



Funnel-shaped vases placed over ring-stands inside Burial No. 3 at Kadambapur. Hand bones kept inside conch shells may also be seen.



35 (b). Funnel-shaped vase over ring-stands from Kadambapur (after mending).



36. Funnel-shaped vases or lids.

No. 1 from Pochampadu

No. 2 from Kadambapur

No. 3 from Maski

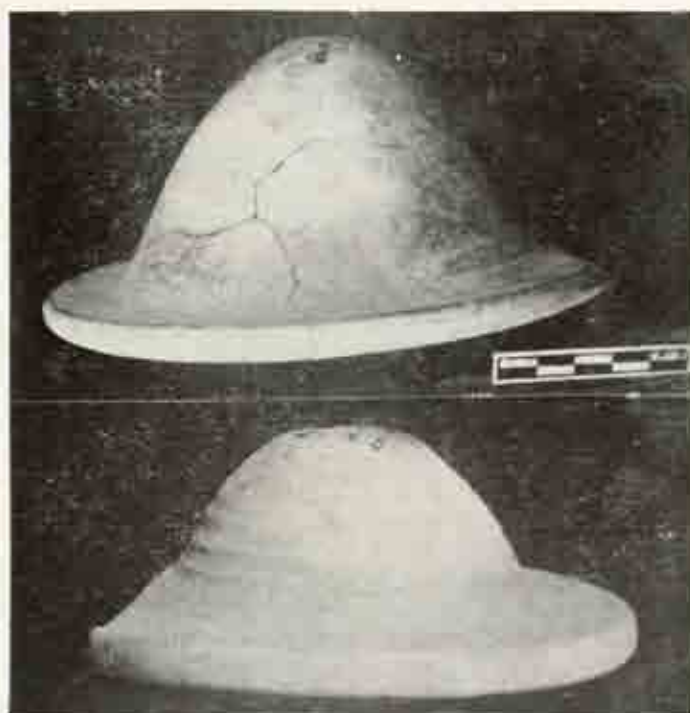
No. 4 from Pochampadu



37. Rare types of deep bowls: No. 1 from Kadambapur, 2 from Peddamanguru, 3 and 4 from Pochampadu.



38. All black ware lids with ringed and knobbed terminals: L. to R, No. 1 from Kistapuram near Yelleswaram; No. 2 from Yelleswaram; Nos. 3, 4 & 5 from Pochampadu.



39. Hat-shaped lids from Peddamaruru.



40. Black ware pottery from underneath the floor slab of Megalith at Peddamaruru.

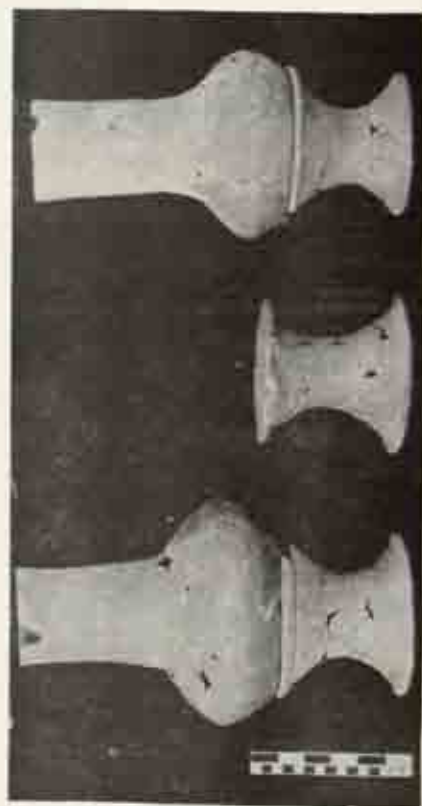
1

2

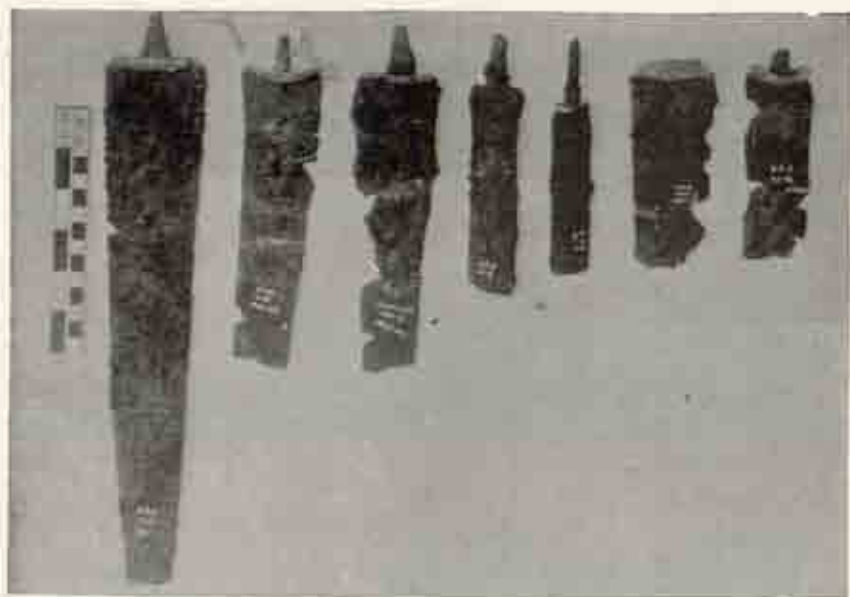
3



41. A visage pot (middle one) from Megalith III, Poddamaruru.



42. Red ware pots with elongated necks placed over ring-stands, Pochampadu.



Pl. 43. Iron daggers with ferrules from Pochampadu.

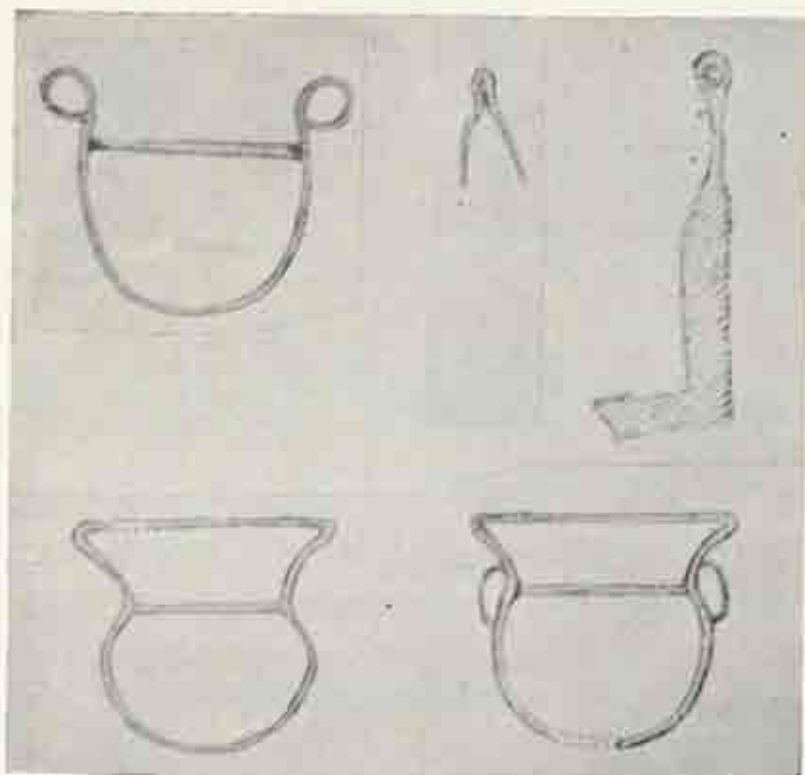


Fig. 4. Iron stirrups from the excavation at Gondimalla and Hashmatpeta.



44. Adzes of different periods: No. 1 from Neolithic; No. 2 from Megalithic; No. 3 from Early Historical levels — all from Peddabankur.

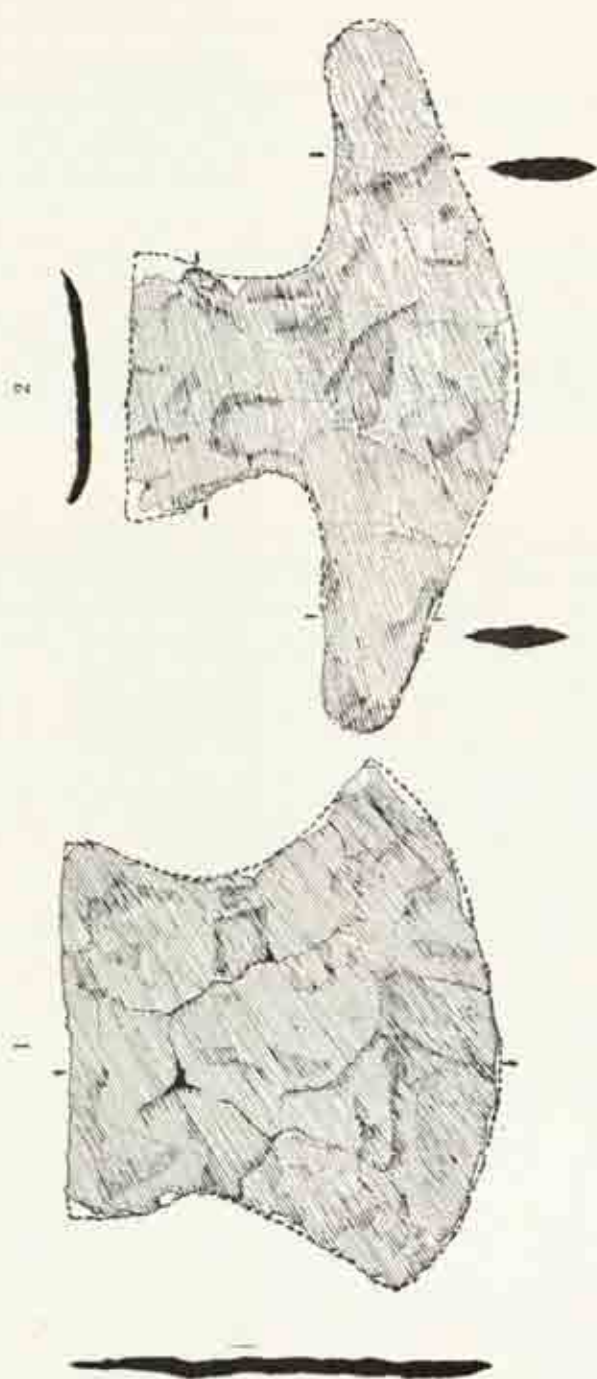


Fig. 5 Megalithic battle-axes: No. 1 from Pochampad, No. 2 from Kadambapur.



Pl. 45. Iron mattocks from Polakonda.

Figure 6

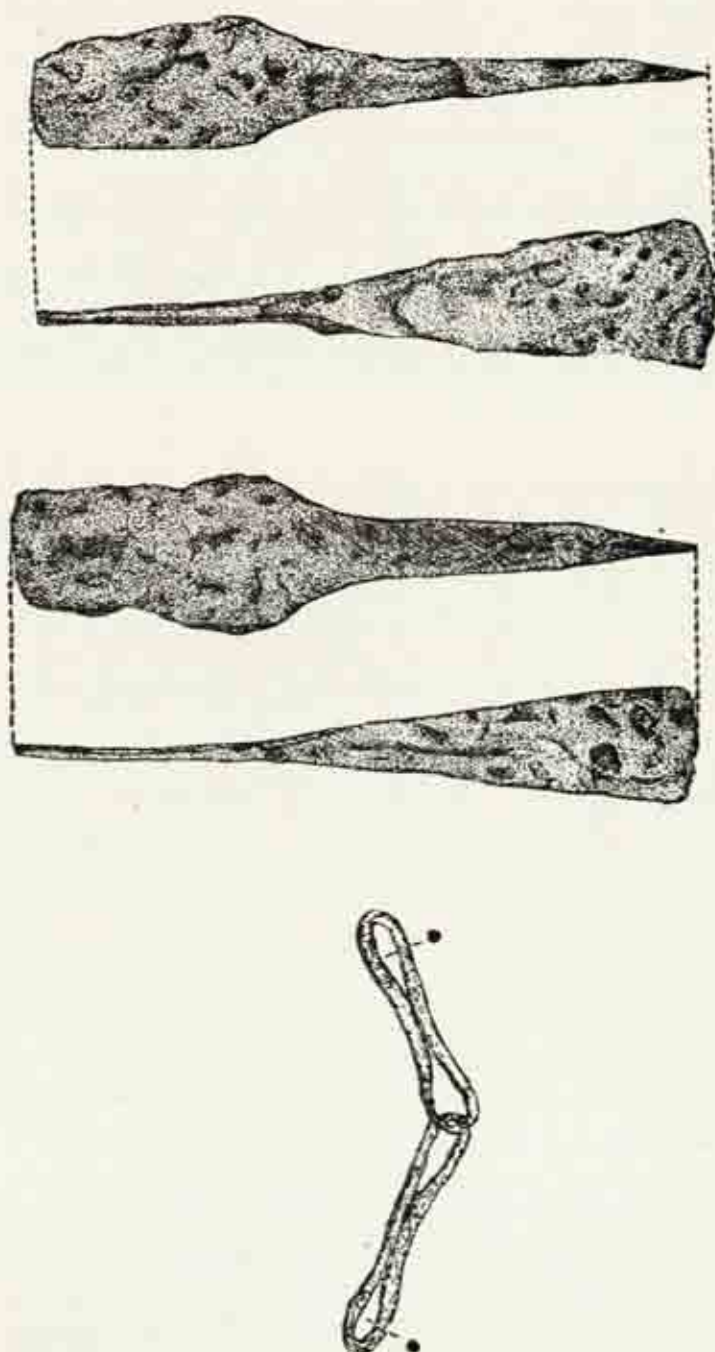


Fig. 6. Drawing of Megalithic iron-mattocks from habitational levels from Polakonda.

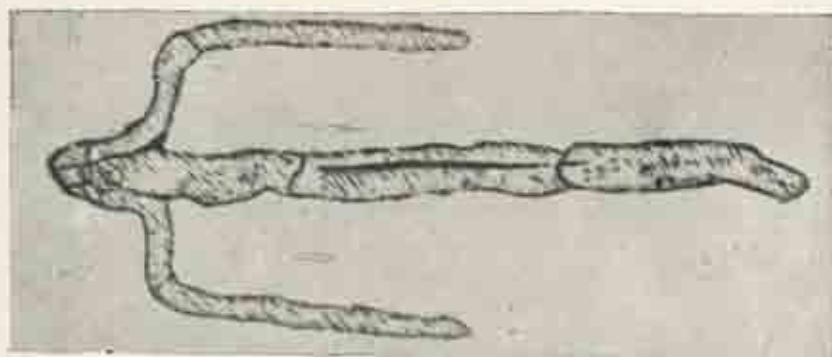
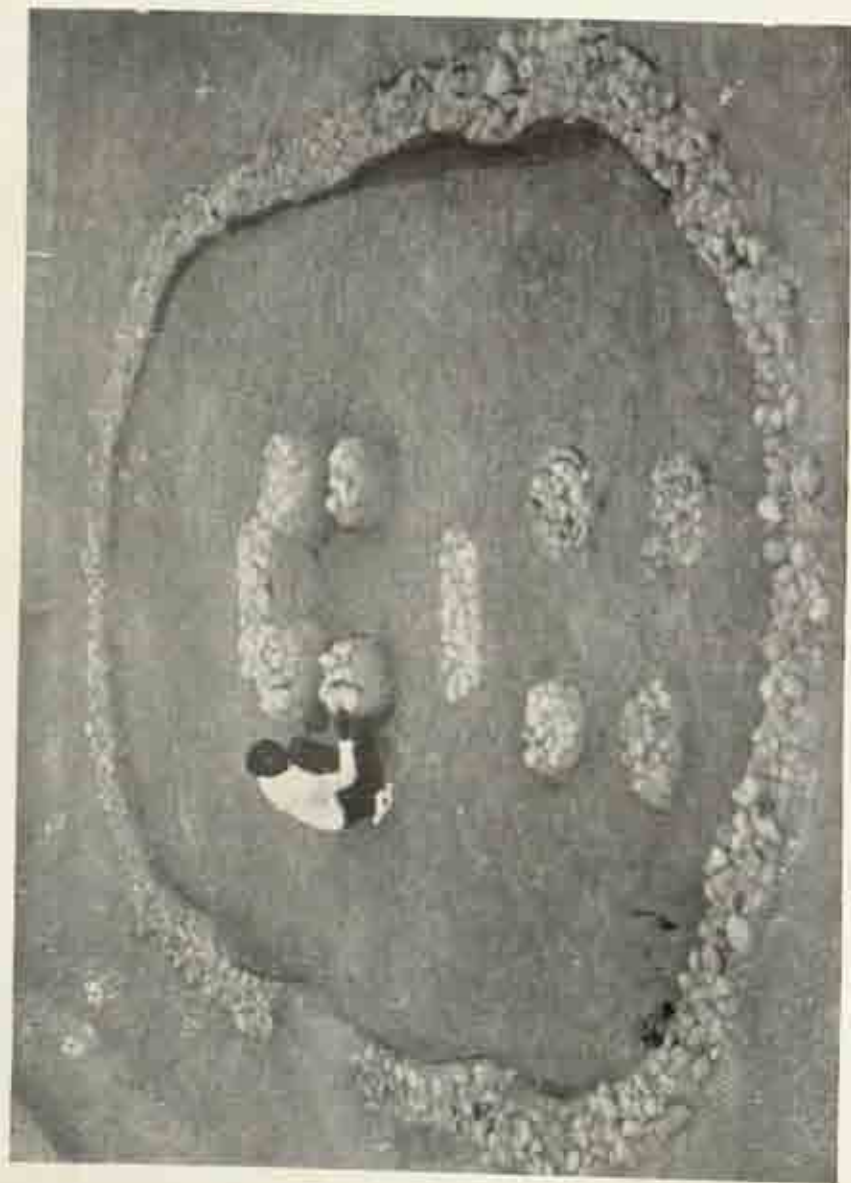
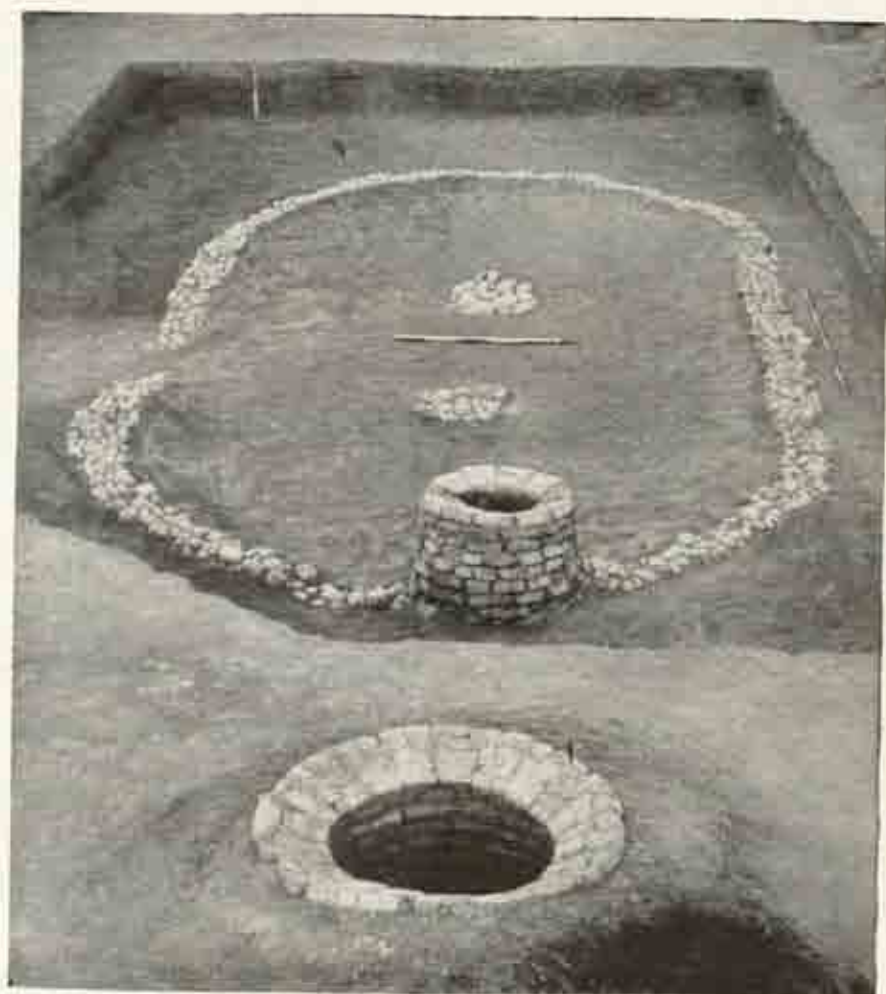


Fig. 7 An inverted trident from Pochampadu.



Pl. 46. An elliptical structure from Peddabankur.



Another elliptical structure found inside Satavahana Brick
Enclosure No. III

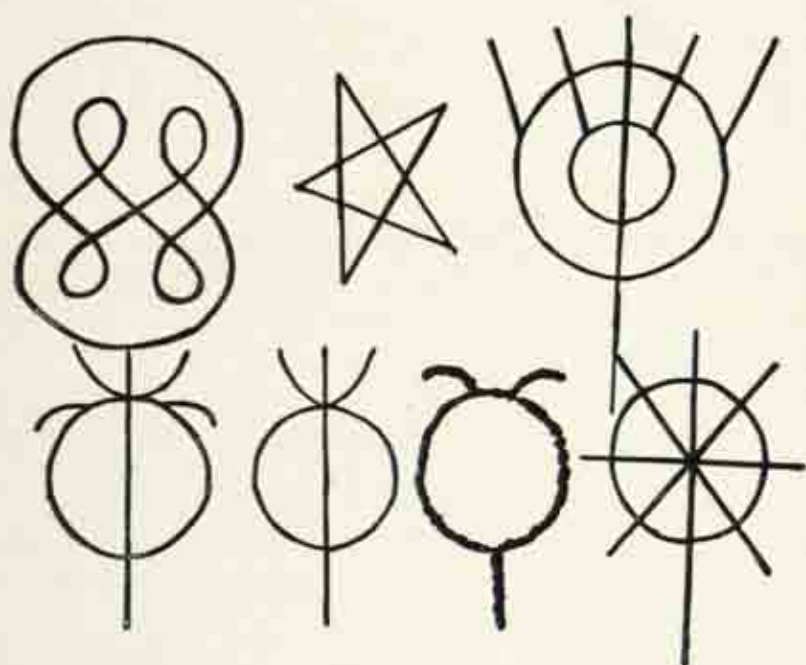


Fig. 8. Endless knot eternal triangle and variations of *Nandipada* design, incised on the exterior of the Megalithic cist slabs at Chagatur and rock-paintings at Kethavaram.

PART III

CHAPTER V

THE EARLY HISTORICAL PERIOD

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(a) Introduction:

Besides the already discussed protohistoric sites the region is studded with a large number of early historical sites. Intensive explorations revealed early historical mounds almost at every alternate village. Evidently the region, comprising the districts of Karimnagar, Warangal, Nizamabad and Medak, was thickly inhabited during the Satavahana period and it may be possible in near future to trace out its political nucleus. This view is strengthened by the account rendered by Yuan Chwang, who had travelled southward from Kosala for about 240 km. (900 Li) to An-to-lo¹ or Andhra, the modern Karimnagar region with its capital 'Ping-Kilo', transcribed by M. Julian as Vinghila. Alexander Cunningham identifies it with Elegandal², about 8 km. from Karimnagar (of course, this was the position of the region in the year 639-40 A.D.). Elegandal has now a late medieval fort at the top of a precipitous hill. Nowhere in the vicinity the traces of an early historical town could be seen.

We have already seen in the earlier chapters that the Dravidians, who attained a high degree of civilization, might have drifted to South India and settled down there permanently. The name of South India as Dakshinapatha occurs for the first time in the Rigveda in which it is referred to as the home for the exiled. It was beyond the frontiers of the Aryan world. Dakshinapatha was mentioned by Boudhayana coupled with Sourashtra. In the Nalopakhyaṇa of the Mahabharata, Dakshinapatha is placed beyond Avanti (Ujjain) and the Vindhyas and to the south of Vidarbha and Kosala.

The Janapadas, situated to the south of Vidarbha (Vatsagulma) and South Kosala, were known, as Assaka and Mulaka. We find from Assaka Jataka³ that a king by name Assaka was ruling in Potali under the kingdom of Kari. According to Suttanipatha,⁴ Assaka was situated

1. Nilakanta Sastri K. A., 1939, *Foreign Notices of South India*, p.98

2. Cunningham Alexander, 1975, *Ancient Geography of India*, p.444

3. *Jataka Stories*, 1957, Vol. II, No. 207, p. 108 - Translated by Rouse W. H. D. London.

4. Suttanipatha, p. 977 cited by Rayachaudhuri, 1972, *Political History of Ancient India*, University of Calcutta.

on the banks of river Godavari. In Chulla Kalinga Jataka⁵, it is stated that, when Kalinga was reigning over the city of Dantapura in Kalinga country, Assaka was the king of Potali in Assaka country. Evidently both the regions were once contiguous. The Assaka Janapada existed in the time of the monarchs Renu and Dhataratha (Dharita Rashtra). It was ruled by Brahmadatta, king of Assaka as a contemporary of Satabhru, king of Kalinga, Vessabhu, king of Avanti, Bharata, king of Souvira, Renu, king of Videha, Dhataratta, king of Anga and Dhataratta, king of Kasi.⁶

In Vayupurana⁷, Asmaka and Mulaka were mentioned as the scions of the Ikshvaku family. The Mahabharata speaks of the royal sage Asmaka (*Asmaka named rajarshi*) as having founded the city of Podana. Panini⁸ makes a mention of Asmaka which was in the interior of the Deccan and watered by the Godavari. The commentator Bhattaswamin identifies Asmaka with Maharashtra.

We learn from the Nasik record of Queen Goutami Balasri that her son destroyed the Sakas, Yavanas, Pahlavas and his dominion extended not only over Asika, Asaka (Asmaka) on the Godavari and Mulaka but also over Surata, Kukura Aparanta, Anupa, Vidarbha and Akara Avanti. It is believed that the Mulaka country extended to the south-eastern region of Andhradesa. Parts of Cuddapah and Guntur districts and the Medak district are referred to in the inscriptions and Telugu literature, until the 15th century A.D., as Mulakanadu or the country of Mulakas⁹. Rayachaudhuri¹⁰ identified Potana or Potali with Bodhan (in Nizamabad district); but this identification may not be correct. Phonetically the word Podana or Potali is akin to Paithan. Moreover it was mentioned specifically that it stood on the banks of Godavari; and Paithan actually stands on the river. In Karimnagar region there is one village by name Mulugu; and its namesake is a taluk headquarters in Warangal district. Andhra Brahmins of a sect who drifted to the coastal region from Telangana in the past, are still known as Mulakanadu Brahmins, a sub-sect of Telanganyas. It is evident that Paithan was exactly Potali or Podana, the capital of Asmaka country and in all probability the present Karimnagar region was the Mulakanadu.

5. *Jataka*, 1897, Book-IV, No. 301, p. 2, Translated by Francis H. T. & Neil R.A. London
6. Cited by Rayachaudhuri H., 1972, *Political History of Ancient India*, University of Calcutta.
7. *Vayupurana* 88/1954, pp. 171-78 - Krishna Dwaipayana Vyasa
8. Panini, *Ashtadhyayi*, IV.I.p.173, 1891, Reprint, 1962, Motilal Banarsidas, Delhi.
9. Venkataramanayya, N., 1950, "Presidential Address", *Satavahana Commemoration Vol. Guntur*, p.5
10. Rayachaudhuri H., 1972, *op.cit.* p.128

In the fourth century B.C. the Magadhan empire was greatly expanded under the powerful but unpopular dynasty of the Nandas, who, according to Puranic account, conquered all rival monarchs and became the emperors of the whole of India. The inclusion of Kalinga in the Nanda empire appears to be confirmed by the famous Hathigumpha inscription of Kharavela, who ruled over Kalinga in the 2nd century B.C., in connection with the construction of an aqueduct. Nanded, on the upper reaches of the Godavari, was sometimes identified with Nounanda Dhera, indicating the extent of Nanda power into the Deccan.

There is no evidence of the Mauryan emperors, who succeeded the Nandas, having undertaken wars of conquest in the south, but they had succeeded to the southern possessions, as a matter of fact, by overthrowing the imperial dynasty of the Nandas. Jain traditions affirm that when Bhadrabahu, the last of the saints, prognosticated a famine of 12 years duration, the Mauryan emperor Chandragupta abdicated the Magadhan throne and migrated to the south with the saint and his pupils. According to Plutarch, Chandragupta overran and subdued the whole of India with an array of six lakh men. Kalinga was conquered by Asoka after a terrible war in which one hundred and fifty thousand were slain and many times that number wounded. No other conquest is attributed to this great sovereign. Some parts of the Deccan may have been taken by force of arms during the reign of his father Bindusara, who, according to Taranath, destroyed the kings of 16 towns and made himself the master of all the territories between the Eastern and the Western seas.¹¹ Asokan inscriptions were found at Maski, Koppal, Brahmagiri, Siddapura, Jatingaranesvara, Udegolam and Nittur in Karnataka and at Erragudi in Kurnool¹² district of A.P. A considerable portion of the Deccan was indeed ruled by the vice-regal princes of Suvarnagiri and Tosali (Dhoul), the Mahamatras of Isila and Samapa and the officers-in-charge of *Atavi* or the forest country. The southern frontier of Asoka's empire did not extend much beyond the locality where the southernmost group of his inscriptions was discovered viz. at Siddapur, Jatingaraneswar, and Brahmagiri. Roughly it touched the line, drawn along 14° Lat. Many writers believe that with the dismemberment of Mauryan empire after the death of Asoka, Satavahanas established a monarchy over the entire Deccan, and seized the imperial throne of Magadha, which was held by them for sometime.

There is a wide difference of opinion on the total duration of the Satavahana rule. Among the Puranas the Matsya mentions 460 years, the Vayu 411 years, the Brahmanda, Vishnu and Bhagavata 456 years

11. Jayaswal, 1916, "The Empire of Bindusara", *JBORS II*, p.82

12. Sircar D.C., 1965, "Select Inscriptions-I" - *On Indian History and Civilization*, Calcutta.

There is a statement in the Vayupurana that the Andhras ruled for 300 years. Smith suggested that the Vayupurana reckons the duration of the dynasty from the fall of Kanvas, while the Matsya and Vishnu mention the entire span of the dynasty. In support of his view he records that if the dynastic totals of 45 years for the Kanvas and 112 years for the Sungas are added to 300 years of the Satavahana total of the Vayu it would yield the Vishnu total of 457 years. There is a general agreement among the Puranas on the fact that there were 30 kings who ruled for 456 years. Ravachaudhari¹³ thinks that, according to the tradition preserved in the Vayu, there were 19 kings who ruled for 300 years, while according to another tradition, there were 30 kings who ruled for 400 years as the Matsya says. He quotes Bhandarkar, who holds that the longer list included the names of the princes belonging to all branches of the so-called Andhra Bhritya dynasty, and the longer period represents the total duration of the reign of all the princes belonging to several branches. The period of 300 years and 19 kings given in the Vayupurana and hinted at in the Matsya refer to the main branch. Raya Chaudhari concludes that the Matsyapurana, which mentions 30 Satavahana kings, includes not only the main branch but also the Kuntala line. If the main line of the Satavahana kings consisted of only 19 princes and if their duration was 3 centuries, there is no difficulty in accepting the Puranic statement that Simuka flourished in the 1st century B.C. and his dynasty ceased to rule over the northern Deccan in the 3rd century A.D.

Large numbers of Satavahana coins have so far been recovered from many parts of the Deccan. But none of these coins represented Simuka, the founder of the Satavahana dynasty. Recently about 6 coins, attributed to Simuka, were presented by one Sri Narahari to Parabrahma Sastry¹⁴, who identified them as belonging to Simuka Satavahana. The coins have on the obverse an elephant to the left with trunk hanging with traces of Ujjain symbol and the legend, 'Siri Chimuka Sata' and on the reverse a Ujjain symbol with double circles and a crescent on one orb. Parabrahma Sastry identified Chimuka of these coins with Simuka of the Nanaghat label inscription and the founder of the Puranic list of the Satavahana dynasty. Palaeographically these coins are assignable to the last part of the 1st century B.C. In the same paper Sastry identified a few more coins with legends, Go Bhada Sa as that of Bhagabhadra, the 5th Sunga king. The third variety belonged to Samagopa, which were identified with Samabhadra or Bhagavata, the 9th member of the Sunga dynasty. Therefore it may be reasonable to believe that the Sunga kings of Vidisa branch wielded authority over the Andhra country, the early Satavahanas being their subordinates.

13. Rayachaudhuri, 1972. *op. cit.*, p. 357

14. Parabrahma Sastri, P. V. 1978, "Coins of Simuka Satavahana Discovered," *APJA*, Vol. I, Part I,

Except these coins we do not have any other evidence to show that the Sungas ruled beyond Vidarbha and a stray case may not help to pronounce a final verdict. However the find of the coins, attributed to Chimuka in the Karimnagar region, is very interesting and it may help us to some extent to trace the origin of the early Satavahanas in the Karimnagar region.

(b) Sites and their Distribution

As noted in the introduction, the Karimnagar region is marked by a number of early historical sites almost in every alternate village. It is really puzzling to find why they are mainly concentrated in the Karimnagar region. It is likely that the political nucleus of the whole or a part of the Deccan might have been situated in the region; secondly the population during Satavahana period must have increased manifold; thirdly it might be a commercially important region, traversed by the ancient trade routes; and lastly, agriculture being the main occupation of the people, they found the area, marked by arable alluvial black soil plains, congenial.

Unlike the settlements of their predecessors, the people, during the Mauryan and later periods, did not particularly select sites in the vicinity of major rivers. They spread far and wide into the interiors in quest of arable land. But there is no evidence of irrigation. Probably dry crops, such as maize, jowar and ragi, besides rice, formed their staple diet and supplemented by plenty of fauna and domesticated cattle. They already perfected the making and usage of well-burnt brick and this is one of the reasons why they were not particular in settling down in the vicinity of hills. The bricks used are as big as 50 to 55 cm. long and 25 to 28 cm. broad. It was so well-burnt that some of them were actually fused by intense heat of the kiln and are as hard as a stone. Just as we have noticed a perceptible change from the Neolithic to the Megalithic, we could find a similar phenomenon at the inception of the Early Historical period.

(c) Settlement Pattern

Kondapur

Kondapur is situated in Medak district about 70 km. north-west of Hyderabad. The village is conspicuous on account of several historical mounds close by, one of which was excavated in the past by the Department of Archaeology under the erstwhile Hyderabad State. The excavated mound is adjacent to a small stream, feeding a small tank nearby. It is at an altitude of 545 m. above M.S.L. and 6 to 9 m. above the surrounding ground level. Excavation at this spot in 1940 revealed some religious and secular buildings of the Satavahana

period, which are architecturally neither very imposing nor even beautiful but quite efficient and skilful, though somewhat plain.

Peddabankur

Peddabankur (18° 30' N. Lat, 79° 30' N. Long.) is presently a small village in the Peddapalli taluk of Karimnagar district. The historical site, with an extent of 30 hectares, is situated adjacent to the Karimnagar-Peddapalli road, which intersects the site in the north-south direction. The site is bounded by a nullah, as ancient as the cultures represented there, known as Hussaini Vagu, about half a kilometre towards the west and one kilometre towards south. It is generally dry in summer, yet the people draw water by scooping in the bed. The surrounding hills are formed of granite and quartz, occasionally traversed by dolerite dykes. The secondary minerals such as carnelian, jasper, chalcedony, crystal and quartz were freely available for the use of the ancient tool and ornament makers. The site and its surroundings are covered by alluvial black soil, overlying, disintegrated granite morrum. The black soil cover, denuded at a few places exposing the granitic morrum, was capped by a microlithic industry. The excavation, conducted by the Department of Archaeology and Museums, A.P. at this place for several seasons under the supervision of the author, revealed many brick structures, cisterns, wells and elliptical rubble structures, besides an array of antiquities such as pottery, iron, copper and terracotta objects, including a big collection of punch-marked silver, Roman denari and Satavahana coins.

Dhulikatta

Dhulikatta, also situated on the right bank of Hussainivagu, is at about 10 km. towards west of Peddapankur. The name Dhulikatta may be a corrupt form of Dhuli Kota, which literally means a mud fort. The villagers know very well the existence of a mud fort, which is popularly called the Kota area. It was deserted either due to a conflagration or due to natural decay but the memories of the ancient glory still linger in the minds of the people. They have pointed out to the author some other areas in the proximity known as Rajula Kunta or Yenugula Cheruvu (elephants' pond).

Peddabankur was a Satavahana village site but Dhulikatta promised to be a walled-town of the Andhras. As attested by Megasthenes,¹⁵ the Andhras have built numerous villages, 30 fortified towns and raised an array of one lakh infantry, two thousand cavalry and one thousand elephants.

15. Mc Crindle J.W., 1877. *Ancient India as Discovered by Megasthenes and Arrian*, published by Chakravarti-Calcutta: pp.137-141.

The historical site, with an extent of 18 hectares of land, is roughly 6 m. above the plains and enclosed by mud ramparts, raised with the earth dug out from the trenches outside the fort, which formed into a deep moat. As at Peddabankur the surrounding area of Dhulikatta is covered by fertile black soil.

About a kilometre exactly to the north of the historical mound a Buddhist Stupa was discovered by the author and later excavated. It is situated at the confluence of the above said Hussainivagu and another nullah coming down from the north. In the vicinity, a kilometre away, is a modern village by name Vadakapura, probably derived from two words, Vata-Kapura, the latter being a much familiar word during the Satavahana period. As there was no anthropomorphic representation of the Buddha at the above Stupa and in the light of the Yaksha and other figures depicted on the *ayaka* slabs, the stupa may belong to the Hinayana sect.

Chinnabankur

The early historical mound is noticed towards the south-west of the present hamlet of Chinnabankur, which is 4 km. away towards north of Peddabankur. The low mound, not exceeding 2 m. above the ground level is roughly 5 hectares in extent and littered with typical early historical pottery, such as red polished, black and red and coarse red, etc. The soil cover is black alluvium.

Vemnuru

The village Vemnuru is 2 km. away from the right bank of river Godavari and approximately 15 km. from Anthergoan, in the interior. The village is approached by a muddy cart-track. The early historical mound about 3 m. high from the ground level is in the middle of arable plains and mango groves with an extent of 3 to 4 hectares. It is eroded at several places and a large number of early historical potsherds found strewn over. The presence of iron slag and iron ore may indicate the existence of an indigenous iron industry.

Kapparaopeta

The village is at 2 km. from Karimnagar-Laxettipet road on eastern side. In the vicinity of the village, there is a hill locally known as Munulagutta, with a precipitous face. At the top of the hill, about 120 m. above the M.S.L. there is a plane surface, considerably spacious and marked by several early historical structures, raised of random rubble. The architectural plan of these structures is square with openings towards east. Close by these structures a few rock shelters are noticed over one of which is an early Brahmi label inscription. These rock shelters were, in all probability, inhabited by Jain monks. The

secluded place overlooks the sandy expanse of the flood plains of river Godavari.

Kotilingala

Kotilingala, situated at the confluence of Peddavagu and the Godavari in the Peddapalli taluk, is about 65 km. from Karimnagar and 5 km. from Munulagutta. The early historical mound, with a height of nearly 6 m. above the plains, is roughly 50 hectares in extent. It is the biggest mound so far discovered. As at Dhulikatta the mound at Kotilingala is also encompassed by a mud fort with several gates, opening towards the cardinal points. The entire mound is scattered with early historical pottery, beads, bricks, querns, etc. Some of the rain gullies which cut across the mound showed the cultural strata as thick as 2 to 2.5 m. and marked by several habitational floors. Adjacent to the bank of river Godavari the fort wall runs to a distance of more than 300 m. The bricks used for the structures measured 50 to 55 cm. long, most of which were ransacked by the villagers to be utilised for the construction of their houses. In fact the entire village of Kotilingala is now built with the early historical bricks. Iron slag and ore are found in plenty. Towards the north of the fort and adjacent to the water course of the river, the brick structures in a long row, which are either square or rectangular in plan, indicate the presence of a wharf. The high mud fortification, protected on the east and the west by the nullah and the river Godavari respectively, and the brick structures near the water course are reminiscent of a once commercially and politically important town. It is from this place the above mentioned coins of Chimuka, the founder of Satavahana dynasty, were collected.

On one of the stone slabs, arranged as a fencing wall to a field on the way to Munulagutta from Kotilingala, a few label inscriptions in the Brahmi character of second century B.C.¹⁶ were noticed. On another sandstone pillar, now lying in a paddy field about a kilometre away, there is a label inscription, which reads 'Nagagopinikaya' in bold double-lined ornamental characters of 1st century A.D. In view of the description of the river in 'Gatha Sapthasathi' and the surface finds, it can be inferred that the site was one of the strong holds of early Satavahanas.

Kachapur

The site is situated by the side of Peddapalli-Choppadandi road, at the turn of which it takes towards Kachapur. At the northern extremity of the site there are low hillocks and outcrops of granite. The soil cover of black alluvium was eroded by rain gullies, which exposed the ancient

16. Parabrahma Sastri P.V., 1978, *op. cit.*

potteries such as black and red, red polished and coarse red, besides profuse occurrence of brick bats. The mound is rather low compared to other sites and is about 6 to 7 hectares in extent. Iron slag was also seen.

Bodagutta

It is about 9 km. from Peddapalli and situated on the foothills of Bodagutta on the Peddapalli-Ramagundam road. The area comes under the revenue jurisdiction of Kannala village. Besides the typical pottery, a fragment of an elongated neck of a sprinkler was also collected. The area extends to about 5 hectares. The soil cover is brownish in colour and fertile.

Bompalli

The village Bompalli is situated within 5 km. from Peddapalli. The historical site is in between two hillocks, on the left side of Peddapalli-Dharmaram road and spreads over an area of about 7 hectares. The low mound is covered by blackish brown soil and marked by ashy patches.

Rachapalli

The village is at about 15 km. from Peddapalli. The site is noticed on the foot hills near the way to Paidichintalapalli from Rachapalli and is about 7 to 8 hectares in extent.

Paidichintalapalli

The early historical site was noticed on the right bank of Bandalavagu (near the project site) among the outcrops of granite. The soil is brown and very fertile. Exploration yielded a large number of brick-bats and typical potsherds. This is also a low mound, extending to about 8 hectares.

Khadeemkanagarthi

The village is at about 9 km. from Peddapalli, in the interior from Peddapalli-Dharmaram road beyond Bompalli. The soil cover is black with a spread of 8 to 10 hectares. Intensive cultivation over the site threw up a good quantity of early historical pottery. Slightly away from the site are found a dozen medium-sized Megalithic cairn circles.

Karnamamidi

The village Karnamamidi is at about 16 km. from Laxettipet, on the Laxettipet-Manchiriyal road near the north bank of river Godavari in Adilabad district. The site is on the left bank of a nullah to a height of 3 to 4 m. from the surrounding plain. This is another extensive early historical site which spreads over 20 hectares. The eastern part of

the mound revealed continuous habitation until the medieval times. Exploration at the site yielded profuse quantity of typical pottery, bricks, etc. As the site is included in the flood plains of river Godavari much erosion is noticed. The soil is black with ashy patches. River Godavari separates the Vemunuru, Kotilingala sites of Peddapalli taluk from this site.

Bodhan

The present town of Bodhan, in the Nizamabad District, is another extensive early historical site covering an extent of about 1 km. within and without the town of Bodhan. It is no wonder that some writers believed that it was once the capital of Asmaka country, known as Potali or Potana. According to Suttanipatha the town was situated on the banks of river Godavari. But the river is now 10 km. away from Bodhan. Except in phonetic resemblance, Bodhan cannot lay claim on the capital of Asmaka country, better than any other historical settlements near the modern villages like those of Kotilingala, Karnamamidi, etc. on the bank of river Godavari.

Nonetheless, the settlement appears to be much bigger than any of those mentioned earlier. The entire town is now enclosed by ancient mud ramparts, rising to a height of 9 to 12 m. on the west of the village, and a double fortification interned by a deep moat. The inner fortification encloses a high mound, where the historical citadel must have existed. On the top of the mud fortification the author has collected early historical potsherds by which it could be surmised that the mud ramparts were raised during the post Satavahana period or the early ramparts were reinforced during the medieval times, digging out early historical habitation in the process.

Bodhan was also the earlier capital of the Chalukyas of Vemulavada during the reign of Arikesari II (930-955 A.D.). It may be recalled that in the recent past, an inscription of the time of Arikesari II, which records the name of 'Pampa' the famous author of Kannada Bharata, was recovered in the vicinity of the mud ramparts.

Unfortunately the whole of the early historical site, outside the town limits, was cut off and levelled for wet cultivation. Even the present town of Bodhan stands partially on the early historical mound.

Vadluru

It is a small village in Kamareddi taluk of Nizamabad district, surrounded by a mud fortification, rising to a height of 6 to 9 m. The mound, enclosed by the fortification, was gradually hollowed out by the villagers, abandoning only segments of the original fortification, adjacent to the village on the north.

Exploration inside the fort revealed a large amount of early historical pottery, consisting of rim fragments of red polished ware, dark brown ware (tan) and dishes of black and red ware, sometimes white-painted concentric rings at the base inside, sherds of dull red ware lid cum-bowls, etc. Undoubtedly there was a flourishing early historical settlement at Vadluru from the pre-Satavahana times and the occupation continued till the Kakatiya period. The construction of the lake, adjoining the fortification towards north, may be attributed to the Kakatiyas.

The thickness of the total habitational deposit is over 3 m. which contained many ashy pits and post-holes. Typical Satavahana brick pieces were also collected.

Kolakonda :

Kolakonda might be a short form of Kolanukonda, in view of its location in the vicinity of a huge lake, Ramasamudram, abutting a range of granite hills. The early historical site at Kolakonda is noticed in an area of about 50 hectares, over the gradient plains between the Chinnagutta and a nullah, which is a tributary to the river Maneru. Traces of early historical habitation were noticed upto half the height of the hill. The surface collection included wares of black and red, red polished, coarse red and all black. Besides, there is also a good collection of Neolithic stone-axes. The entire mound, to a depth of more than 4 to 5 metres, was filled with black alluvium, most of which is now dug out by the villagers for manuring their fields. Only small chunks are left over here and there.

Excavation by a few trial trenches was conducted by the Department of Archaeology under the supervision of the author at different places, which revealed a deposit of Megalithic habitation of considerable thickness and capped by the Satavahana. With the exception of a few post-holes no traces of permanent structures were noticed.

Polakonda :

The early historical site at Polakonda was noticed at the foothills of Peddagutta towards the south to an extent of nearly 10 hectares. The Department of Archaeology and Museums had undertaken trial excavations, which revealed 3 periods of occupation viz. the pre-Satavahana, Satavahana and the medieval. The pre-Satavahana phase was marked by a majority of brown ware, besides black and red, black brown and dark brown wares, with a mix up of red polished ware. The Satavahana phase was characterised by a brick structure over rubble foundation. In one of the cuttings a brick wall of 2 courses (each brick measuring $54 \times 26 \times 7$ cm.) was noticed. The lower courses have a 10 cm. broad offset. The western and southern walls measured 5.10 m. long 0.55 m. E. T. 9

broad; the other walls were ruined. The bricks were well-burnt and consisted of profuse mixture of sand, grass and small twigs. No husk was found. In the middle of the structure, a cistern 1.70 x 1.80 m. was noticed. Internally it measured 85 x 75 cm. with the present depth of 60 cm. The floor was paved with brick, making it water-tight. Post-holes were noticed over the walls at regular intervals, possibly meant for the erection of wooden posts for supporting the roof.

From the pre-Satavahana level a solitary potin coin, inscribed in early Brahmi script and datable to around 2nd century B.C., was found. The legend is not very clear but reads as "*Mahatalavarasa Vijasamikasa Seva Sabha*". In the middle there is a beautiful figure of horse, standing to left; on the reverse nothing is visible. In this connection it may be recalled that a terracotta seal, recovered from pre-Satavahana level at Peddabankur, is inscribed with a Brahmi legend reading "*Mahatalavarasa Vijasamikasa Seva Sabha*". Some coins belonging to Maharathi Villivayakura, and Sivalakura were found in the Kondapur region in the past. It is now evident that this region was governed by Maharathis and Mahatalavaras either under the early Satavahanas or the earlier.

(d) Architecture

1. Forts :

Kautilya¹⁷, in his Arthashastra, envisages that a fortress known as *Sthaniya* shall be set up in the centre of 800 villages, a *Drona mukha* in the centre of 400 villages, a *Kharvatika* in the centre of 200 villages and *Sangrahana* in the midst of a cluster of 10 villages. The ruins of the early historical towns and the villages in Karimnagar region are divisible into two categories viz. the fortified and the unfortified. The towns or villages which are politically and commercially important were provided with fortifications. The difference between a town and a village was that the town was protected by a ditch and a wall, while the villages were not. The town was inhabited mostly by traders, in addition to the king and his appurtenances, while the village was inhabited by the agricultural people.¹⁸ The ordinary villages did not have any protection. Some of the fortified towns were noticed either in the middle of the plains or abutting hills or girdled by rivers or deep nullahs.

In the Arthashastra,¹⁹ we find 4 types of fortification viz. the water fortification (*Audaka*) such as an island in the midst of a river, a plain one surrounded by low ground; the mountainous fortification such as a rocky track or a cave; desert such as a wide track, devoid of water

17. Shama Sastry R., 1915, *Kautilya's Arthashastra*, Book-II, 46, p.51

18. Gaganannath Jha, M.M., cited by Shukla D.N., *Vastuashastra*, Vol.I, 1957, p. 243.

19. Shama Sastry, 1915. *op.cit.* p.56

and over-grown with thicket in barren soil; the forest fortification (*Vanadurga*) full of wagtail (*Khajana*) water and thickets. The material for raising the ramparts was always mud, dug out from outside the settlement on all sides, the trenches thus excavated simultaneously serving as moats. The most important parts of a city were a moat (*parikha*), rampart (*prakara*) and gates (*dwar*), which served as the main defences.

The ancient *sutra*²⁰ literature envisages a regular town-planning. The marking out of the site for the moat, the rampart and the palace formed the preliminary part of such planning. The scheme of a fortified town, according to *Samarangana Sutradhara*²¹ (Chapter X, 1-2) a late work, comprised the following five principal elements of defence.

1. *Prakara*, the surrounding walls ;
2. *Parikha*, the moats ;
3. *Dwara*, the gates ;
4. *Attalakas*, the towers and turrets ; and
5. *Rathya*, the chariot roads, connecting the town with the country.

The *Vastu Vidyacharyas*²² or expert architects were requisitioned for testing the sites. The *Arthashastra* prescribes the digging of ditches (*parikha*) as the first item in the construction of forts (*durga-vidhana*). We find in Mahabharata that the city of Indraprastha was mapped out and measured in the presence of Dvaipayana Vyasa and others and the work was commenced with the digging of a series of moats, followed by the building of a high rampart, numerous gate-ways and towers (Adiparva, 209, 29-32). The moat was first built so that the earth so obtained was utilised for constructing the mud rampart (*pamsu prakara*) or moulding bricks for the city wall.

The *Arthashastra* prescribed digging of three moats round the fort, having an intermediate space of one *danda* (six feet) between each other. The Udaya Jataka (IV.106) mentions three types of moats, viz. *udaka*, *kaddama*, *sukha*, or a water moat, a mud moat, a dry moat. Panini suggests a *Devapatha* or passage above the ramparts. According to Kautilya,²³ the wide moat on the top of the parapet built along the line of battlement was called *Devapatha*. The height of the brick wall above the mud rampart is stated to be 11 m. from the ground level, on which the battlements were built. The Raghuvamsa also refers to *Devapatha* (XIII.19).

20. *Ashtadhyayi Sutra*, Vol. I, pp. 17-18 referred by Agrawala V.S., 1953, "India as Known to Panini," p. 137

21. Shukla, D.N., 1957, *Vastu Sastra*, Vol. I, p. 286

22. Jataka, 1897, *op.cit.* Book I, 297, Book IV, p. 323

23. Shama Sastry, *op. cit.*, p.51

Gateways :

The plan of the ancient walled-cities was either rectangular or square, and provided with four gates, one in the middle of each wall, facing four cardinal points. These gateways were named after the cities towards which they open. The naming after of the city gates continued to the present day. The Golconda fort of the Qutub Shahi period was named as *Mecca-e-Darwaja*, *Banjara Darwaja* and *Fath-e-Darwaja*, etc. Many gates built in the Moghul period derived the names in the same manner, such as *Ajmiri Darwaja*, etc.

The gateways appear to be of two types, viz. the *torana* and the *gopura*. The *torana* was an ornamental gateway without a door. The *gopura* was the city gateway.²⁴

Forts in Karimnagar Region :**Kotilingala :**

The mud fort at Kotilingala rises to a height of 6 to 9 m. from the surrounding plains. It was enclosed by the river Godavari on the north and by the Kapparaopetvagu (nullah) on the east. The nullah takes a turn towards south at about a kilometre down, and thus fortifying the town on both east and south. The main gate to the fort is noticed towards the south connecting a high-way. The fortification on the Godavari side was much ruined due to flooding and erosion. However a gate in the middle of the rampart was traced, which served as an inlet and outlet for merchandise. It must also have served to supply water from the river. At all the corners of the fortification there are bastions, presently appearing like high mounds.

Budigapalli :

The fortification around the early historical mound appears like a bund of a tank rising to a height of 3 m. from the surface. The fortress is in juxtaposition to a range of hills, known as Valasagattu on one side.

Dhulkatta (Plate 48) :

The early historical mound, to an extent of 18 hectares of land, is enclosed by a mud embankment, once served as rampart, with a present height of 3 to 5 m. Four gateways were traced at the four cardinal points. Excavation was conducted at the southern gate-way bringing out the plan of the guard-rooms, prefaced by a gate-house, to light. The plan of both the buildings is enigmatical as nothing more

24. Amarakosa, *Namalinganusasana of Amarastimha* (Ed. by H. D. Sharma and N.G. Sardesai), Poona, 1931, p.77

than the foundations has survived. However, it appears that the guard-rooms comprised two rectangular halls, with a middle pathway and with an outside measurement of 15.13 m. north-south by 14 m. east-west. There is a gap of 4.40 m. in the middle for the pathway. While building the guard-rooms, it appears that large chunks of the rampart were cut off on either side of the building for accommodating the structure in the width of the rampart. The flooring inside the halls was paved with brick (56×27×7 cm.). The middle pathway was initially strengthened with rubble and veneered with morrum and silt.

The plan of the gate-house, prefacing the guard-rooms, is uncertain as it was not found in its entirety. It constitutes a broad gateway outside and crammed in the middle, which again widens towards the guard-rooms. The central part of the gate-house, with space sufficient only for the pathway, had casemates or ambush niches on either side. The only existing casemate on the west (1.20×0.90 m.) was actually carved into the mass of the wall. A flight of steps was provided to the casemate. Evidently a room of such small dimensions with a flight of steps could only serve as an 'ambush niche' to post armed-guards, who would not be visible to the incoming and outgoing people. At present the 'niche' appears like a 'cistern' which was filled up at a later period with coarse red conical bowls, dishes and animal bones.

The facade of the gateway must have had one or many storeys with a terraced roof, railings and pillars. Access to these storeys might have been provided with stair-cases. The depiction of the city gates of 'Kusinara', as seen in the lowest architrave of the south gateway of the Sanchi Stupa,²⁵ may be a replica of the city gates during the period under review.

The Mud Rampart :

The rampart of a height of 5 m. was constructed of the earth dug out from outside. Traces of the trenches, which once served as moats, are visible. The lowermost portion of the rampart consisted of hard yellowish morrum overlaid by a layer of black soil, which was capped by another layer of disintegrated morrum. Adjoining the mud fortification inside was traced a rubble foundation, the superstructure of which is now completely ruined. This must have been a brick fort-wall as the super structure and the battlements were built above it.

The height of the brick fort-wall above the ramparts was prescribed to be 11 m. rising from ground level, but we do not have an idea of the height of the brick wall at Dhulikatta.

25. Marshall J., 1918, *A Guide to Sanchi*, P1, V, p.50.

2. Village Sites :

Kautilya²⁶ has stated that the king may construct villages either on new sites or on old ruins by inducing foreigners to immigrate by sending forth the excessive population from the thickly populated centres. Boundaries were denoted by a river, a mountain, a forest, bulbous plants, caves, buildings or trees such as *Salmali*, *Sami* and *Ksheera Vruksha* (cactus), etc.

Peddabankur :

The villages were marked out by their natural boundaries, such as forests (*sana*), thickets (*kathina*), rivulets, hills, etc. The settlement at Peddabankur was a village with no walls around. Interestingly three huge brick structures, two of them measuring 30×40 m. and a third one 16.80×15.80 m., were revealed in the course of excavation. The enclosures or *prakaras* appear like castles and have only a single gateway either in the north-east or north-west corner. These were evidently occupied by wealthy individual families. We do not at present have an idea about the height of these structures but they are more than 2 m. broad. Inside these *prakaras* traces of houses, wells, cisterns, etc. came to light. The entrances, which were very broad, sometimes exceeding 3 m., were intended to allow vehicular traffic. They were self-sufficient units. Some enclosures have even two to three wells, most of which are nearer to the walls. In the first enclosure a huge brick well was noticed in the middle of the northern wall, a second well cutting into the western wall and a third well, a smaller one, found adjacent to the south wall and in the second enclosure no well was found but one was found at the north-eastern corner outside. The used waters of the well were led out to a soak pit, lined with terracotta rings.

(c) Road - Planning :

The roads and their planning form one of the most important canons of town-planning. Roads have three-fold functions, viz. they serve as highways for the traffic from region to region; secondly they constitute a vital limb in the town-planning, and thirdly as sanitary value, by providing arteries for free ventilation. According to Aitareya Brahmana the royal thoroughfare was called *Rajapatha* or *Srutti*, whereas the national highway was known as *Mahapatha*.²⁷ It appears that the latter was connected with and fed by many thoroughfares, leading to different parts of the country, while the former was comparatively free from dangers and its construction was better than *Mahapatha*. In *Devi Purana*²⁸ it was

26 Shama Sastry, R, 1915, *op.cit.* pp.46 and 51

27 *Aitareya Brahmana I*, 18-3, translated by Herge Martin, 1863.

28 *Srimadh Devi Baghuvatham*, Ch. 72, pp.78-79

mentioned that the royal street or highway should be constructed as wide as 10 *Dhanus*, i.e. forty cubits, so that men, horses, elephants and vehicles could have free movement without interference and congestion. Sukracharya prohibits the construction of small lanes such as *Veedhis* and *padyas* (foot-paths) in the metropolitan cities. In *Arthia Sastra*²⁹ we find a mention of chariot roads, royal roads, roads leading to *Dronamukha* and other minor forts, countryside and pasture grounds, which should be four *dandas* or 7.25 m. in width. Roads leading to military stations, burial or cremation-grounds and villages shall be 8 *dandas* or 14.5 m. in width, roads to gardens, groves and forests shall be 4 *dandas* and roads leading to elephant stables and forests shall be two *dandas*.

The road through the southern gateway at Dhulikatta mud fort was paved with rubble and veneered with morrum and sand. This might be the method of constructing a road in other towns as well. The important commercial towns and villages were possibly connected by a network of roads. The region was actually traversed by ancient trade-routes (*Sardahalyaha patha*), one leading from north to south connecting Buddhist establishments, and the other from east to west connecting Dhulikatta, Phanigiri, Gajulabanda, Tirumalagiri, Nelakondapalli, Nagarjunakonda and Dhanakataka. From Pauni in Vidharba region the Buddhist pilgrims might have travelled over forest roads or by boat on river Wainganga, which falls into the Pranahita, a tributary to the Godavari. The pilgrims possibly crossed the Godavari at the point of confluence of the Pranahita and the Godavari in the neighbourhood of Kaleswaram in Mahadevpur taluk in Karimnagar district. From Mahadevpur they would reach Dhulikatta, the only Buddhist establishment in north-western Andhra Desa. The caravan route towards the west passed through Tagara (Ter), Pratisthana (Paithan) on the banks of the Godavari and Sopara through Ellora and Nasikya (Nasik).

It was prescribed in the ancient texts that the land and the landscape for building ideal towns and their surroundings must consist of mountains serving as natural frontiers, not easily accessible from the security point of view. This is an invaluable asset but this rule cannot be adhered to everywhere, especially when the towns or villages were to be built on plains. Hence a fortification was needed. Practically all the ancient towns and cities on the plains were fortified and encompassed by a green belt of forests, replete with lofty trees and plants and fraught with verdure and flowers. This was necessary not only from the point of view of congenial climate but also conducive to the growth and sustenance of the people deriving fruits, fuel and fodder. The other essential was water without which no life can subsist and hence the rivers, lakes, ponds and tanks were indispensable for the lay-out of a town.

29. Shama Sastry, R., 1915, *op.cit.* pp. 60-61

(f) Town-Planning :

Any town planning in ancient or medieval India must bestow sufficient-attention to the *rajavesma*, the residential quarters of the king and his kinsmen. The *Samarangana Sutradhara*³⁰ says that once the town was planned, all the roads, both highways and the central ones together with the *maharathyas*, *uparathyas* and thier auxiliary ones, the streets, lanes and by-lanes, were also planned out, the fortification in all its ramifications and component parts of the surrounding ditches, ramparts and walls were to be completed. Then a piece of land was selected at the western side of the centre in the orientation of north-south whereon the palace of the king should be built. The same text makes a classification of the palace into three categories viz. the *Jyesta* the superior, *madhya* the intermediate, and the *kumsta* the lower type.

Dhulikatta**Palace Complex (Plate 49) :**

Excavation in the middle of the mud fort at Dhulikatta revealed a palace complex and the residential quarters, which have seen several phases of construction. In the earliest occupation level, probably contemporary to the construction of the Buddhist stupa, a huge enclosure of 26×30.50 m. was raised over a single course of rubble foundation. The existing height of the wall is 2.60 m. and 80 cm. broad. The structural plan of the buildings inside this enclosure is beyond surmise as they were all covered by buildings of successive phases, but at a depth of 1.60 m. from the surface two parallel walls in the east-west direction were exposed. But for an entrance with a door step the remaining plan underlying the later structures could not be gleaned.

During the second phase the structures were raised over the ruins of the earlier phase over a foundation of rammed earth raised to a height of 40 cm. Part of a structure, over this rammed earth foundation consisted of two rooms, which seemed to have been covered with tiled roof as noticed by a debris of fallen tiles in the vicinity. Towards the south of these rooms two store-rooms, each measuring 1.05×0.65 m. were uncovered. Slightly away towards the north is another rectangular room of 6.75×4.50 m. On the exterior of the northern wall of the above room several vertical grooves were carved so as to hold wooden pillars to support a terraced roof. A 50 cm. broad entrance to the building was traced towards the east. The flooring of this phase, laid in lime concrete, was noticed in a fragmentary condition.

In the third phase, the structures (Plate 50) were characterised by spacious halls with floors paved with brick, granaries, wells, and

30. Shukla D.N., 1957, "Hindu Science of Architecture", *op.cit.* p. 276

multi-storeyed buildings provided with sewage, signifying a period of prosperity.

The plan of the main building of this phase resembles that of a quadrangular building known as *chatussala*, with four rectangular halls on four sides and a central court-yard opening to the sky. The entire edifice forms into a square in plan. The eastern hall in the north-south orientation measured 9.35×4 m. In many chambers chases, apparent in the face of the walls, mark the places, where wooden beams were once installed in the masonry. The southern hall which measured 10.80×4.00 m. had a platform with a flight of steps. This class of *sala* house was most common in the early historical period. At the south-west corner inside the enclosure wall of the first phase, a brick well, almost square in plan (1.45×1.35 m.), was exposed (Plate 51). Adjacent to the well and to the west is a platform with two post-holes, evidently for erecting pillars to support pulley. A 70 cm. broad covered drain runs adjacent to the wall.

While removing the filling from the above well a beautiful ivory button-seal, inscribed with *Brahmi* characters, reading as '*Ajanisriya Game Kumariya*' was recorded. A little north to the well are two granaries, partitioned into compartments, one measuring 1.30×1.35 m. with a depth of 4 m. and the other 1.25×1.35 m. with a depth of 3 m. The granaries were constructed with brick in the shape of an inverted pyramid and tapering towards the floor. The bricks were laid in receding layers so that one can easily get down to the floor. The filling inside the granaries consisted of two gold beads, a few Satavahana potin coins, animal bones and pottery. Another granary in the vicinity, also in the inverted pyramidal shape, measured 1.35×1.45 m. with a depth of 1.60 m.

In the fourth phase the buildings were plastered with lime and burnished to smooth surface. Lime concrete was used for paving the floors. The brick used for buildings of this phase seems to have been removed from the structures of the earlier phase. A soakage pit with a partition in the middle (1.25×1.25 m.) is noticed at the north-east corner. Construction of granaries continued. One was a perfect square in plan and measured 2.15×2.15 m. and the other 2.50×3.00 m.

As in the previous phases, the buildings of the fifth phase were raised over the ruins of the earlier and were much disturbed due to constant cultivation during the later periods. Most of the bricks from the buildings were removed and carried away by the villagers, as such, the structural plans are not clear.

During the last phase the constructional activity with brick had completely ceased, and the entire complexion of the habitation changed.

Hutments, sometimes square in plan and sometimes oval, sprang over the ruins of palaces. The area became the habitat of artisans, who eked out their livelihood by the sweat of brow. They (artisans) included bangle and bead-makers. Bead-makers produced precious and semi-precious beads. Terracotta art flourished but ceramic art deteriorated.

The above said palace complex is situated in the midst of the fortress but slightly to the west. From the beginning of the constructional activity, traceable to 3rd century B.C., the buildings were constructed with well-burnt brick (with measurements 55×27 cm. or 50×25 cm.). The length is always double its breadth. The mortar was mud and the bricks were laid in headers and stretchers. The plans of the buildings were invariably rectilinear. Interestingly the structures do not have strong foundations; occasionally a single course of small rubble was used, sometimes they consisted of rammed morrum. However the buildings stood firm. In the earlier phases the floors were simply paved with small kankar and sand but it was replaced by lime concrete in the later phases. The walls were beautifully plastered with lime to a smooth surface. The entrances had flights of steps with *ardhachandra*-shaped brick step at the floor level outside.

As described above, some of the walls have grooves cut into the body at regular intervals, evidently for raising wooden pillars to support a terraced roof. Some buildings were covered by corrugated tiles perforated at one end. Many such tiles were noticed in the course of excavation. The breadth of the walls, usually 1.5 to 2 m., may indicate the existence of multi-storeyed buildings. The palace complex in the middle of the mud fort was enclosed by a massive brick enclosure wall with an existing height of nearly 3 m.

Folk Architecture :

After the planning of the roads, ditches, ramparts and the *rajavesma*, the next important item in the planning of is the residential houses for the people. There were principally five kinds of towns in the ancient and early medieval period viz. temple cities, capital cities, commercial towns, forts, and big villages, like *Khetu*, *Nigamas* corresponding to five principal needs of the civilized life, viz. worship, state craft, commerce, defence, and agriculture.³¹

According to caste-wise allocation in a town the *Samarangana Sutradhara* recommends the following procedure:

(1) The *Brahmanas* were allocated to the north, the *Kshatriyas* the south-east, the *Vaisyas* the south and the *Sudras* the west.

31. Shukla D. N., 1957, "Hindu Science of Architecture", *op. cit.*, p. 276

Peddabankur Settlement :

As already noted, the settlement at Peddabankur appears to be a village with an extent of less than 5 hectares, and without a fortification. In the course of excavation many residential buildings, constructed of either brick or mud over rubble foundation, have been uncovered. These include three enclosures or *prakaras*, elliptical houses, cisterns and wells, soakage pits and covered drainage.

The enclosures, constructed of well-burnt bricks, are squarish in plan without any adjuncts. The breadth of the walls is nearly 2 m.

Enclosure-I (Plate 52) :

This measured 16.80×15.80 m. with a wall thickness of 0.65 m. Ten courses of brick are now extant. A small entrance was seen in the middle of the southern wall. Over the top courses of the structure, evidently of a later period, post-holes at irregular intervals were noticed. Outside this enclosure, at the south-western corner, there is a brick wall connected to a soakage-pit, lined with terracotta rings, each measuring 59 cm. in diameter and 37 cm. high with a thickness of 2.5 cm. Due to the pressure of top soil, the rings were crushed and consequently broken. A few red ware potsherds and charcoal were scooped out of the pit. In the course of excavation inside this structure, a punch-marked silver coin, besides a red-polished globular pot impressed with a trident standing over a pedestal, was noticed in the middle. This symbol was impressed at four places over the pot. In the light of stratigraphy (layer-III) this structure is datable to around 1st-2nd century A.C.

Enclosure-II (Mint) (Plate 53) :

About 10 metres east of the present main road another rectangular brick enclosure, measuring 30×40 m., was exposed, the longer axis being in the north-south direction. The trial probing work, conducted by the Department before taking over the site under its protection, laid bare a portion of the structure, and was left uncared which resulted in the wholesale robbing of bricks by the villagers. Some undamaged portions of the southern and western walls are 1.79 metres broad with three to four brick courses existing. In the remaining damaged portion only a 2 metre broad rubble basement was exposed; the size of the brick of the enclosure is $55 \times 28 \times 9$ cm. A single 2.50 metres broad entrance was noticed at the north-eastern corner. The broad entrance was evidently intended for letting in vehicular traffic.

Enclosure - III (Plate 54) :

The 3rd Enclosure, squarish in plan and measuring 30.89×30.80 m., is situated on the south of Enclosure-I, about 100 m. away. The walls are

2 m. broad and the brick measured $54 \times 21 \times 9$ cm. Most of the bricks were not well burnt and consequently broken to bits. This also happened due to pilferage of the well-preserved bricks. The structure was raised over a single course of rubble which was laid bare at many places. The walls on the north-east and south are intact. The western wall was completely robbed.

It is not clear whether these enclosures were inhabited by single families or group of families. Inside these enclosures 2 or 3 brick wells were invariably noticed. Only in the Enclosure-II, which is smaller than the other two, the brick well was noticed at the south-western corner, and connected to a soakage pit outside. Inside Enclosure-III are two elliptical houses raised of mud walls. But these were not contemporary; one was earlier and the other later to the enclosure. The plausible reason would be that they contained quadrangular halls inside, raised all along the walls with a central opening in accordance with the fashion of the age. Outside these enclosures and contemporary with them are the houses of common folk, mostly having mud-walls, covered either with thatch or tiles. From inside Enclosure-II came several thousands of Satavahana coins.

The plans of the houses are either rectilinear or elliptical. No round huts are seen. For the above two types, the basement consisted of rubble.

Water Supply :

The fundamental necessity for a town or village was a good natural supply of water and hence the rivers, lakes, ponds, and tanks were indispensable prerequisites. The most potent factor giving rise to the towns in ancient India was the presence of water in abundance. Consequently all the important towns and cities rose either on the bank of a river or nullah.

The water reservoirs were given a special treatment in many works dealing with architecture. In the later works as *Aparajitapreccha*³² and others three main varieties of water reservoirs were mentioned viz. *kupa*, *vapi* and *tataka*. There are ten varieties of *kupa*, the well. These varieties vary in their respective dimensions i.e., *Srimukha* is to be laid-out in four *hastas* and the *Sankara* type to be laid-out in thirteen *hastas*, but all these should be laid circular.

Panini³³ also mentions that the villages depended for their water supply on wells (*kupas*) to which were attached *Nipanas* or water troughs from which the cattle would drink. Wells were cleaned by specially trained labourers who acted as dredgers called *udagaha* or *udakagaha*.

32. *Ibid.*, p.392

33. Agrawala V.S., 1953, *India as Known to Panini*, p. 141.

Wells at Peddabankur :

Whatever water that was used by the house-holders it was drawn from wells, constructed of brick and occasionally steened with terracotta ring wells. This is the case with regard to the settlements away from the main rivers. At Peddabankur as many as 22 wells were exposed in the course of excavation. Out of these only a single well was lined with terracotta rings with a square brick-casing, enclosing the rings at the top course [Plate 55 (a)]. One well of brick is exactly square in plan and the remaining 20 are round and constructed with wedge-shaped brick, the antiquity of which can be traced to the Harappan period.³⁴ It was noticed that bricks with semicircular top and flat base to a height of about 30 cm. were placed over the top course of some of the wells at the place, where from the water drawn out slip either inside or outside the well, avoiding damage to the brick-lining. In the later period when the wells were dried-up they were used as refuse pits for the garbage which consisted of pottery, animal bones, ash and charcoal. Inside, well No. 1 [Plate 55(b)] constructed near the northern wall of Enclosure-II the filling was removed down to a depth of 3 m. It contained coarse-red conical bowls, globular vases, lotas, animal bones, etc. All the bricks, right from the top to the bottom, used for steening the well, are wedge-shaped and measured 30 x 20 cm. and 20 cm. long (Plate 56). The bricks were well burnt. Well No. 10 was square in plan, measuring 90 x 90 cm. The steening of with brick was noticed upto the morrum level encountered at a depth of 2.45 m., but the total depth of the well goes down to 3.85 m. The finds inside the well were charcoal splinters, an iron rod, flakes of mica, fragmentary animal bones, iron slag, corrugated tiles, terracotta beads and pottery. Another well also steened with wedge-shaped brick had a diameter of 1.52 m. inside. Excavation down to the bottom exposed 39 courses, laid over a bed of pinkish hard morrum. The length of the brick is 30 cm. and thickness 7 cm. While exposing this well another well steened with brick was incidentally exposed just at a distance of 1.80 m. towards the south. It has only 18 brick courses laid over a morrum bed. It appears that the upper courses were removed for constructing the well mentioned above. The second well was much earlier in date than the former, as evidenced by a layer of potsherds. To the west a deep pit was cut for leading out the sewage. The bricks measured 33 cm. long and 8 cm. in thickness, wedge-shaped and well burnt. The diameter of this well is 1.50 m.

Covered Drain :

Slightly towards north of these two wells, a brick drain, oriented east-west, came to light. It was constructed of bricks laid in 3 courses with a middle space of 12 cm. for the drain. The floor was

34. Marshall J., 1973 (reprint) *Mohenjodaro and the Indus Civilization*, p. 269

also paved with brick. At regular intervals side vents were provided on both the sides to let out excess water, presumably for avoiding bottle-necks. The drain was covered with brick to the full length. Due to pressure from the top deposits and also due to looseness of the ground soil the drain had sunk at several places in an undulating fashion. The total length of the drain is 11.15 m. The starting point of the drain could not be located as it was much damaged. It must have been led out from a collapsed tiled structure exposed nearby, which evidently was a bath-room. The brick of the drain measured $57 \times 27 \times 9$ cm. It was led towards east to join a long ditch in north-south orientation.

As already mentioned, there is only one terracotta ring-well at Peddabankur. Each ring, with a convex body, measured 76 cm. in diameter and 38 cm. in height. There are altogether 21 rings down to the morrum bed. The top most ring was enclosed by a square casing of brick, which measured 1.75×2.10 m. outside and 0.90 m. inside, which is the diameter of the well (Plate 57).

None of the wells have washing platforms around. The sewage was allowed to percolate inside or led to a pit in the vicinity. Only one well, found outside the Enclosure-II, had a soakage pit lined with terracotta rings (Plate 58). As far as could be observed mud mortar was the only cement used to bind the bricks forming the steining of the wells. Due to lack of paved floors around the wells it could not be decided as to what height the well was projected above the floor of the court in which it was situated. The excavated trench, before it was steined with brick, was much wider and the gap between the trench wall and the bricks outside the well was rammed with morrum and hard earth to prevent waste water from re-entering the well. The top portions of some of the wells appear to be displaced and the brick surface much abraded by the ropes, used for drawing vessels, rubbing against them. In some wells, where the brick surface is well preserved, the water might have been lifted with some form of windlass as there are no marks caused on the surface by the friction of the ropes. If windlasses or pulleys were used on any of the wells, these must together with their supports have been made of wood, a well, found inside Enclosure-II at the north-east corner, the gaps, within which such wooden poles were erected on either side, were noticed.

Cisterns :

Brick cisterns or troughs invariably formed the essential feature of civic life during the early historical period. Many such cisterns, excavated at Peddabankur, were constructed of well-burnt bricks. Some of these had floors rammed with morrum and then paved with brick to prevent percolation. But some have only rammed floors. The other feature is that none of these cisterns are near the wells, but found at a considerable distance.

One cistern is a perfect square in plan, measuring 85×85 cm. and has presently only two brick courses, the bricks measuring 55×22 cm. In the middle of the cistern was noticed a hog-backed coping brick and a broken quern by its side. Evidently the hog-backed and flat-based bricks were used not only for the top courses of the wells but also over the cisterns.

A second cistern was found almost in the middle of the Enclosure-III. It has 6 courses of bricks and measured 80×75 cm. inside (Plate 59). The floor was first rammed with morrum and then paved with bricks. Cisterns with brick-paved floors are rare. Adjoining the cistern is a washing floor bordered with brick, but the floor inside was not paved. Towards the south-west of Enclosure-II and 50 m. away 3 brick cisterns at varying distances were noticed. They measured in No. 1. outer 1.11×1.11 m. inner 65×68 m; in No. 2. outer 1.10×1.10 m., inner 0.60×0.60 m; and in No. 3. outer 1.10×1.10 m. inner 60×80 m. A well (No. 6) which was steened with wedge-shaped brick was found at some distance to the cisterns.

Another rectangular brick cistern, with four existing courses measuring 2.37×1.47 m., also came to light at Peddabankur. The bottom courses were slightly projected outside and the corners rounded. Adjoining and to the north of it there is a flight of two steps, possibly for taking out water. The floor inside the cistern was tightly packed with morrum. Slightly away, a debris of tiles indicates the collapsed roof of the house covered with tiles. To the north and adjoining the cisterns are two more cisterns of equal dimensions (80×80 cm.). One is slightly at a higher level and adjoined with a brick platform, studded with fragments of iron slag. In all probability, the three troughs and a hearth (22 cm. broad) and the working platform, studded with slag, are the remnants of a blacksmith's workshop.

Religious Architecture :

Brahmanical :

None of the sites, excavated or explored in the Karimnagar region, gave us any evidence of the temples of Brahmanical origin. A single brick cell, about 100 m. away to the west of Enclosure-III, appeared like a temple without giving us any knowledge as to what deity it was dedicated to. The brick temple measured 5.30×4.90 m. Chases were cut into the face of the inner walls, suggesting that the roof was supported by wooden poles. A small gap of one metre, found at the south-west corner, might have served as an entrance, or else it could be that the wall at this spot was removed in the later period; it has no other entrance.

Another structure to the east of Enclosure-III and 50 m. away is rectangular in plan and measured 2.00 x 2.50 m. To the west of it there is a flight of steps. While exposing the steps a fully polished stone-axe of dolerite came to light. It appears that the people had kept the relics of the past as mementoes; otherwise no significance can be attached to the stone axe while dealing with an age characterised by highly developed metal technology.

Buddhist :

The other variety of religious structures, which could easily be distinguished from domestic architecture, are the Buddhist stupas. While excavating the early historical sites at Peddabankur and Dhulikatta we were puzzled as to the religious proclivities of the people. Notwithstanding the occurrence of terracotta figurines of Mother Goddess, Yaksha, etc. there was no other clue. The discovery of a Buddhist stupa, a kilometre north of Dhulikatta mud fort, solved our problem to some extent. Reviewing all the available evidences it may be surmised that the Buddhist religion was rather more organised than the Brahmanical, atleast among the common folk.

Excavation over the mound brought out a Buddhist stupa, constructed during the last quarter of the 3rd century B.C. and embellished with carved *ayaka* slabs during the 1st quarter of the 2nd century B.C.

Construction of the Stupa at Dhulikatta (Plate 60) :

The stupa consisted of a brick drum of 2 m. height over a single layer of rubble basement. The *anda* or the dome rises over the *garbha* to a height of 5 m. and crowned by a *harmika* and *chatra*. The *chatra*, carved in limestone, was recovered in fragments in the course of excavation. The first phase of the stupa saw the construction of a solid drum, enclosed by a square platform serving both as a buttress to the *garbha* and as a *pradakshina-patha*. For maintaining a hemispherical shape the *anda* was raised in several stages, in alternating courses of brick and morrum. The lowest brick course of the *anda* above the drum slightly juts out. Then a layer of morrum to a thickness of 36 cm. was laid over the first course. The second course of brick above that was arranged in headers and stretchers. For getting a circular shape, no wedge-shaped brick was used. Apparently these were not in vogue at the time of the construction. However, a perfect circle was obtained by filling up the gaps between the rectangular bricks with earth and brickbats. Again, over the second brick layer a 57 cm. thick deposit of a mixture of silt, morrum and brickbats was raised. At the top of the dome there is a square brick cell, which probably served as *harmika*

The programme of expansion, during the second phase, consisted of enlargement of the drum circle by constructing a second tyre around the earlier one and the raising of *ayaka* platforms on the four cardinal points. The *ayaka* slabs were affixed to the exterior face of the enlarged drum with lime plaster.

The *garbha* of the stupa was bedecked with 47 carved *ayaka* slabs, which are mostly intact. On one of the slabs the Muchilinda Naga (Plate 61), a five-hooded cobra protecting Lord Buddha, symbolically represented by his feet, was exquisitely delineated. At the top over the frame and of the five-hooded Naga was inscribed a label, in early Brahmi script, datable to *circa* 2nd century B.C. It reads as *Gahapathino Pathalasa Mathuya Samaya Danam*. The slab was affixed to *garbha* with a thick plaster of lime. Interestingly the Naga slab at the northern *ayaka* platform is prefaced by a huge pipal tree [Plate 62].

In between the eastern and the northern *ayaka* platforms there is another slab, bearing the five-hooded Naga, inscribed in early Brahmi characters and reading '*Pitha Nandi Puthasa Duhuthuya Sayonija Danam*'. The Naga Muchilinda on both the slabs was crowned by a *chatra* under the shade of a pipal tree in incised design. The *Buddhapadas* were carved over the coiled body of the Naga. In the other panel is found a *dharmachakra* with the two votary couple, standing on either side in *anjali* (Plate 63). Most of the slabs have the representation of the stupa, depicted in bas relief. As there was no anthropomorphic representation of the Buddha the Stupa had remained as a bastion of Hinayana sect without any influence of the Madhyamika school. Buddha was represented symbolically by the *chatra*, *padukas*, *dharmachakra*, stupa, etc.

Monastic Cells :

On the north-west of the stupa and just two metres away are a series of square monastic cells, each measuring 3.30 x 3.50 m. The walls of the monastery consist of two alignments of single brick courses, laid separately with an intervening gap of 42 cm. and filled in with a pack of waste brickbats and morrum, a device evidently adopted to the sparing use of bricks. The 90 cm. broad doors of the cells open into a verandah on the north, which is one and half metres broad and runs along the length of the rooms. The flooring inside the verandah and rooms was paved with brick and the roof was covered with tiles.

At the rear of the rooms are two more walls of single brick course, laid separately with a gap of 40 cm. The plan of the building, constituting these walls, is beyond comprehension due to the limited scope of excavation.

Phanigiri :

The village Phanigiri is situated in the Jangoan-Suryapet road about 60 km. away from Jangoan. An extensive Buddhist settlement,

consisting of many stupas and viharas, was situated on the top of a flat hill, a kilometre north of the village. There is a huge tank at the foot of the Phanigiri hill, the antiquity of which may be traced back to that of the Buddhist settlement. Phanigiri must have been situated on the ancient caravan and Buddhist pilgrim route from the Vidarbha-Kosala region towards Dhanakataka. In the vicinity, other Buddhist settlements are noticed at Gajulabanda, about 5 km. towards east, and Thirumalgiri about 30 km. towards south-east.

As stated by Khaja Mohd. Ahmed³⁵ there are ruins of 30 stupas at Phanigiri most of which are circular in plan, and raised over rectangular stone basements. Most of the stupas are noticed over the western proclivity of the main *vihara*, and constructed in different tiers.

In the middle of the main *vihara* are found many brick constructions, square in plan, and appear like cells, possibly occupied by the Buddhist monks. As the establishment was raised over the hill the constructions were supported by buttresses in the shape of boxes in order to stop erosion due to rain.

Many perforated tiles, as noticed in other early historical sites were found here among the ruins. It is likely that the structures had terraced roofs, covered with the tiles. The bricks in the ruins measured 55 × 27 × 8 cm. Many carved friezes of limestone have been found. The artistic wealth, though quantitatively less, yet represents a highest tradition. Besides the stone sculptures, a few coins of satavahanas (and Ikshvakus?) and Eastern Kshatrapas were also recorded.

Gajulabanda :

Gajulabanda³⁶ is about 5 km. east of Phanigiri. The Buddhist settlement is noticed near a huge tank on the outskirts of a small village by name Aitoor, in the Suryapet taluk of the Nalgonda district. A trial excavation by the Department of Archaeology revealed the existence of a stupa, *vihara* complex and a *chaitya*, of which the former indicated two phases of constructional activity, with marked variation in plan and conception. The earlier plan of the stupa, comparatively small in size, was engulfed by the later accretions, resulting in an elevated 16-spoked stupa simulating the examples at Amaravati and Nagarjunakonda. The speciality of the stupa lies in its simplicity and convenient location. It is noteworthy that the stupa is devoid of *ayaka* platforms in contrast to those found in other parts of Andhra Desa.

35. Ahmed K.M., 1950, *Phanigiri, Bouddhacrama Sidhhalu* (Telugu), pp.1-3

36. Murthy P.R., "A Report on the Excavations at Gajulabanda" - *ARAM*, 1970-71, under publication.

A full wing of a three-winged monastery, consisting of 8 cells, came to light. A rectangular verandah, running in the east-west direction was added to the vihara complex. The *chaityagriha* is at present devoid of stupa-chaitya or the anthropomorphic representation of the Buddha. The rich collection of antiquities are constituted of stucco figurines, such as moulded lions, petalled lotuses, volutes, creepers, cord-patterns and animal figures such as *makaras*, *yalis*, etc. Two sculptured lions, carved on limestone, were also recovered. The pottery, which included conical bowls, sprinklers, decorated pots/herds carrying lotus designs, etc. was made of well levigated clay and turned on fast wheel. A fine variety of black polished ware was also associated. The abundance of sculpture in stucco indicates the pains the builders had taken to embellish the structures and more so speaks volumes of their ability to plan such a comprehensive monastic complex in all its essentials within a restricted place.

Thirumalgiri [Plate 64 (slab)] :

The village is about 70 km. from Jangoan towards Suryapet. A huge Buddhist stupa was noticed to the west of the village, which is now in ruins. The entire area, which was once hallowed by the presence of a Buddhist stupa, is now occupied by recent hutments. The entire courtyard of one house, a bath-room of another and a cattle-pen of the third could be found on the space over the dilapidated drum of the extensive stupa. A few beautifully carved pieces of limestone such as *Dharmachakra*, a fragment of a narrative sculpture of a Jataka story are now embedded in the mud walls of a carpenter's house.

(f) Material Life-Professions :

1. Agriculture - Its Evolution :

Panini mentions agriculture as *krishi* which was derived from the root *krish* meaning 'to plough'. Katyayana and Patanjali have, in an interesting discussion, opined that *krishi* denotes not only ploughing but collectively other operations of agriculture also such as the supply of seeds, implements, animals and human labour.³⁷ The husbandman was known as *krishiwala*.

Agriculture was the main occupation even for the Vedic Aryans, who devised ways and means to improve the methods of cultivation. Plough and bullocks or sometimes buffaloes were indispensable for the purpose of cultivation. In Rigveda we find a mention of *sasya* (food grain), *krishi* (cultivation), *yava* (barley), etc. A person called *Prithi Vainya* is credited with the origin of ploughing in Atharvaveda

37. Patanjali's *Mahabhashya*, 1949, published by Satyabhama Bai Pandurang, Vol. III, 1.26; II.33.

(Av. 8-10-24). The *Satapatabrahmana* mentions the different processes of agriculture as "ploughing, sowing, reaping, threshing, and tilling the plants", etc. The Brahmana texts record that paddy which was sown in the rains ripened in autumn. We also find references to two harvests a year.

Cowdung was used as manure for the lands. The *Satapathabrahmana* says, "cowdung surcharges the earth with sap and hence cowdung is collected" (SB. 2-1-1-7). Even from the Vedic times the cows and bullocks were regarded as prized possessions for manure and ploughing. The cow was held in high esteem and addressed as the Goddess Aditi. The *Satapathabrahmana* says, "Iyam vai Vasa, Prsnin" (the cow is the veritable earth)." "Cattle means prosperity or nourishment, goods mean cattle, riches mean cattle, and cattle means food" says the *Satapathabrahmana* (PASA VO HI ANNAM).³⁸

Kautilya³⁹ ordains that the Superintendent of Agriculture should possess the knowledge of the science, dealing with the plantation of bushes and trees, or be assisted by those who are trained in agricultural sciences (*Krishi tantra*). The superintendent shall in time collect the seeds of all kinds of grains, flowers, fruits, vegetables bulbous roots, etc.

In *Brihatsamhita*⁴⁰ the agricultural operations were dealt with quite elaborately. Fields were marked off from one another by means of artificial boundary lines. There were two main crops, *purvasasya* and *aparasasya*.

The early historical settlers in the Karimnagar region as in other regions had attained a very high degree of civilization characterised by fortified towns, palatial buildings, subterranean sewerage, well-laid out roads, good water supply and metallurgy. Their economic life was a combination of agriculture, animal husbandry and probably hunting. Many of the towns and villages were raised in the middle of arable plains of black soil. Some of the lands on the outskirts of Kotilingala mud fort had a fencing of stone slabs. Some of the slabs were inscribed with *Brahmi* characters of 2nd-1st century B.C. One stone pillar, now lying in a paddy field about a kilometre away from the fortress, bears a label inscription which reads as 'NAGA GOPI NIKAYA': nikaya may mean an assemblage, a group or a dwelling.

38. *Satapatha Brahmana* 3-7-1-20, 1884, reprint 1966 - Translated by Eggeling J., Vol. XXVI, pt. II, p. 172 - Sacred Books of the East, Edited by Maxmuller F.

39. Shama Sastry R., 1915, *op.cit.* p.142

40. Shastri A.M., 1969, *India as Seen in the Brihatsamhita of Varahamihira*, pp. 261-262.

The selection of cultivable plains by the early historical people would indicate their agriculture-oriented economy. It is likely that, while the towns were inhabited by the kings, feudal lords and their entourage, besides those in commercial professions, the villages were mostly occupied by husbandmen.

The excavation at Peddabankur yielded a terracotta sealing incised around the perimeter of a black-and-red ware rounded potsherd with Brahmi characters as 'VIJAYAPURA HARA KASA RATTASA'. As per the level it was found that the sealing could be dated to 1st century B.C. In the middle of the circular inscription a figure of plough was incised with a yoke and two pegs on each side, evidently for fastening leather thongs around the neck of draught animals. The inscription may mean that it pertains to one *Ratta* of the *Ahara* of Vijayapuri. They may suggest that the profession of the individual was cultivation as indicated by the plough.

In one of the inscriptions of Virapurushadatta, the Ikshvaku king of Vijayapuri, it was stated that his father Chamthamula donated thousands of ploughs in order to promote agriculture. *Hala* may indicate both a plough or the extent of land that could be cultivated with a single plough⁴¹. The area actually brought under the plough was known as *halya* and *sitya*.⁴² *Halya* was the unit of land cultivated with a single plough as may be inferred from the examples, *dvihalya* and *trihalya*, stated in Kasiki (IV.9.47). In Rig Veda (IV.57.6) Sita or furrow was personified and addressed as a deity. In Atharva (III.17.5.107) Sita was worshipped as a deity to bless, bestow prosperity and bring fruits (of land) abundantly.

There is another terracotta seal, also from Peddabankur, incised with a yoked plough in the middle and flanked by the so called Ujjain symbol and a spoked-wheel on either side (Plate 65). The Ujjain symbol as suggested in the previous chapter may indicate the four cardinal points or the deities presiding over these quarters. The spoked-wheel is a symbol of the Sun god. The presence of the yoked plough in between the two auspicious symbols may suggest that the yoke was also worshipped or regarded as a sacred object. In Rig Veda the two agricultural deities *Suna* and *Sira*⁴³ were venerated for sprinkling the earth with water. *Suna*, *Sira* mentioned in Rig Veda are the dual gods of whom *Suna*, according to *Saunaka*, is the deity of the Sky i.e. Indra, and *Sira* is Vayu. In Atharva Veda (III.17.8.107) a sacrifice was offered to *Suna* and *Sira* to make the plants give abundant produce. In the Yaska's Nirukta *Suna* was identified as Vayu and *Sira* with Aditya and in ordinary parlance *Sumasira* is a name of Indra.

41. *Epigraphia Indica*, 1929-30, Vol. XX, pp. 19-20

42. Panini's *Ashtadhyayi*-IV.4.91, *op.cit.*

43. *Rig Veda Samhita*; translated by Wilson H.H., 1977 (reprint), p.224

The clearing operations of the jungles for making the land suitable for cultivation were carried out with the help of flat celts of iron, hafted with wooden handles. The weeds were removed with the help of weeder. A large number of sickles found in the excavations, in all probability, used for harvesting. The so called hoes found at Peddabankur and other places were not hoes as suggested by some scholars but are really plough-shares. The implement from Peddabankur has a thick curved cutting-edge and the flaps at the butt were folded inwards to form into a socket. The uncertainty regarding the nature of the object would disappear if the curved cutting-edge and the heavy weight of the implement are taken into consideration.

There is one more interesting object, also from Peddabankur, which is a spade or scraper with a 16 cm. long and 9 cm. broad blade and a flat (14 cm. long) tang. It must have been used as a spade or scraper for levelling the fields.

The extensive use of oxen in agricultural operations for heavy traction or prolonged draught work is attested by some peculiar characteristics revealed in the osteological studies.⁴⁴ A bone of a cattle found at Peddabankur is ankylosed fairly extensively, a condition usually noticed in animals subjected to heavy operational drafting. The hind legs are prone to heavy pressure in the heavily worked animals either for ploughing or draft purpose.

In addition to the agricultural operations many varieties of animals were domesticated for food requirements. They consisted of cattle, buffalo, sheep, goat, dog, swan and rodent. There is also a skeleton of a horse found dumped in an early historical brick well. The swine population, either wild or domesticated, appears to be unusually low at Peddabankur.

(2) Hunting :

Besides domestication of animals, some of the people practised hunting of wild animals as indicated by a large number of iron arrow-heads, lances and spear-heads. Kautilya⁴⁵ cites 'Pisuna' as saying that among the vices of hunting and gambling, hunting is the worst. Game shooting was done with arrows, provided with barbs (*patra*), and such arrows according to Panini caused extreme pain (Panini V.4.61). In connection with the shooting of barbed shafts he refers to two kinds of arrows viz. *sapatra* and *nishpatra*, barbed and unbarbed. Hunting is often referred to as *lubdha yoga* and the hunter as *margika*, and the one who shoots *mrigas* and traps birds as *pakshika* or *sakunika*. Among the hunted animals are included deer⁴⁶, pig, turtle and a large variety of birds.

44. Alur K.R., 1974, *Animal Remains from Peddabankur-A.P.J.A.* Vol.I, Part II, 1979.

45. Shama Sastry R., 1915 *op.cit.* p.398

46. Dikshit, M.G., 1968, *Excavations at Kuandinyapura*, p.156

(3) Carpentry :

The carpenter enjoyed an important position in the society. Panini⁴⁷ mentions three important village artisans known as *gramasilpius* viz. the village carpenter, potter and barber. Pathanjali⁴⁸ dilates the list as that in each village there were five artisans viz. the potter, blacksmith, carpenter, barber and washerman. The carpenter was variously known as *taksan* and *vardhaki*. Vatsyayana⁴⁹ includes wood carving (*taksana*) in the list of 64 arts.

The chief concern of the carpenter was the selection of trees for suitable wood to be employed in fabrication. Varahamihira⁵⁰ throws ample light on the selection of wood. The timber of trees near cremation grounds, the river confluences, in the vicinity of a temple, by the road side, of those withered at the top, entwined by creepers, thorny, those possessing nests and bee-hives and those that collapsed due to thunder-storm or by elephants or had fallen down in a southerly or westerly direction are prohibited.

The criterion in the selection of appropriate trees is that they should have sufficient strength for bearing the load of structures and super structures of the buildings. The architecture in the ancient period mainly related to pillars, beams, lintels, door-frames of timber. The entire structure of the roof was made of timber.

The following types of trees were commonly selected :

- (1) *Khadira*, (2) *Bijaka*, (3) *Sala*, (4) *Madhuka*, (5) *Saka*, (6) *Simsipa*, (7) *Sarja*, (8) *Arjuna*, (9) *Anjana*, (10) *Asoka*, (11) *Kedara*, (12) *Rohini*, (13) *Vikantaka*, (14) *Devadaru*, and (15) *Sriparni*.

Among the carpenter's implements the axe, adze, chisel, saw-blade, are commonly noticed. Many kinds of iron nails such as flat-headed, bent-headed, round-topped may be included in his tool kit. Some of the nails are as long as 20 to 25 cm. suggesting that as much thick wood was utilised. There are also a good number of rivets from Peddabankur and Dhulikatta. These rivets consist of nails of square cross-section riveted to squarish plates on either side. Some of the rivets are 12 to 15 cm. long. There are also many staples.

(4) Mining and Metallurgy :

Metal industry had reached a high water-mark of development during the early historical period in the Karimnagar region. The

47. Panini, *Ashtadhyayi*, VI.2.62, *op.cit.*

48. *Pathanjali's Mahabhashya*, 1949 (I.48, I.118)

49. *Vatsyayana's Kamasutra* I.3.16, 1961 - translated by Upadhyaya S.C. - published by Tarapurwala, Delhi.

50. Shastri A.M. 1969, *op.cit.* LXXVIII 4.5

commonly worked metals are iron (*loha*), copper (*tamra*), gold (*survarna*), lead (*sizaka*), bell metal (*kamsya*), and glass (*kacha*).

The knowledge of iron smelting and its forging was known in the peninsular India from the beginning of the first millennium B.C., if not earlier. There are many references in the literature to numerous iron ore producing centres throughout the Deccan, which yielded high grade iron. The iron ore was found and smelted at Warangal, Konasamudram, Dindurthi, Komarapalli, Brahmanapalli, Mulkanr, Nirmal, Gudkole, Mylavaram, Jagtial, Yelchel, Rangapet, Konapuram, Kallur, Anantagiri, Lingampalli, Nizamabad⁵², etc. The iron ores were collected from the above places and turned into fine steel known as 'wootz' at the famous steel producing centres like Konasamudram, Yelgandal, Ibrahimpatnam, Kanapur, Chintalpet and Gudkole. The steel produced at Konasamudram was of a very high quality, which attracted traders not only from the different parts of India but also from far off countries like Persia.⁵³

Smelting of Iron :

The actual method of smelting of iron is not clear from the available evidence, though it may be possible to draw certain broad inferences. Rami Reddy⁵⁴ suggested that many of the ash mounds, noticed in south Andhra Pradesh and adjoining Karnataka territory, were possibly the resultant of iron-smelting. He suggested that the cow-dung cakes were arranged like a dome and iron ore lumps were placed in the middle of the heaps. The heap was then covered with green, semi-green and dried cactus twigs which were largely available on the hill slopes. The roof of the dome was finally covered with earth and fire was lit. When all the corners of the heap took fire quartz and feldspar pieces were thrown into the fire. The heap was allowed to burn overnight. The heap thus yielded partially vitrified ash lumps. Further the iron ore lumps thus melted to form into iron.

But this *modus operandi* appears to be local and does not seem to have penetrated into other regions. In Karimnagar region no ash mound has been noticed so far, nonetheless the iron technology was as old as that of any other place.

The method suggested by Banerjee⁵⁵ may hold good in this region, which consisted of laying several alternate courses of charcoal

51. *Vishwakarma Prakasa* X, 50, referred by Shukla D.N., 1960, *Vastusastra*

52. Bilgrami H.S.H. 1883 *Historical & Descriptive Sketch of H.E.H. the Nizam's Dominion*, Vol. I, p.397.

53. *Ibid.* p.401

54. Rami Reddy V., 1975, *The Ash-Mound Problem in South India*; the paper read at the 62nd Annual Session of Indian Science Congress

55. Banerjee N.R., 1965, *The Iron Age in India*, p.179

and iron ore into a pile and daubing it thickly with clay to prevent heat from dissipating. The kiln, circular in plan, must have been provided with passages for intake of air and escape of gases and outlets for molten iron. The collected molten iron was first cooled off by inserting it into water and then hammered out for the removal of charcoal. In course of hammering the charcoal was absorbed into the iron giving it the properties of steel.

The other method of producing steel⁵⁶ was to cut out blocks of iron obtained in a malleable state into cubes, each about one pound in weight. These small cubes were put in crucibles of various sizes according to the purpose for which the steel was to be employed. The fire is then kept up for more than 24 hours, with dried branches of teak, bamboo and green leaves (cactus) of various shrubs. It is then allowed to subside and the crucible is placed on the ground to cool off. When it is opened a cake of great hardness is found weighing about a pound and a half which is half a pound more than the original cube placed in the crucible. The cakes thus prepared were used for the manufacture of Damascus sword-blades, daggers, knives, spears, arrow-heads, and such others.

Interestingly a crucible of iron, 15 cm. in diameter, was found at Dhulikatta excavations. Considerable amount of charred wood, leafy material and mud, besides a big well-burnt terracotta cake were found adhered to the concave crucible. The incrustation outside and inside may suggest that it was burnt under a huge pile of wood. In the vicinity of the crucible a squarish cake, with a middle core of solid iron, overlaid with quartz (crystals) pellets, and burnt clay may go to prove that iron and steel metallurgy was practiced as a home industry.

Forging :

Suggestive of the method of forging, adopted in the early historical period, the excavation at Peddabankur yielded a terracotta forge slightly ovoid in shape, measuring 20 cm. in diameter at the broader axis and 12 cm. at the shorter. The uneven wall is of 19 cm. height and of 2 to 2.5 cm. thickness. It has an oblique hole for the introduction of a nozzle of bellows. The inner surface of the wall around the nozzle hole has a lot of incrustation of slag. Associated with the forge there is a rectangular brick cistern (2.37 × 1.42 m.) of four courses, the lowest one projecting outside and the corners on the exterior rounded. Two small brick steps adjoined the cistern. The floor of the cistern was packed with morrum and sealed with a veneer of tiles. In juxta-

position to the main cistern are two more smaller troughs of brick (0.80 x 0.80 m.). The working floor near the forge was thickly embedded with fragments of iron slag. The associated antiquities included an iron ring, a rivet, iron nails, a sickle, an iron knife, constituting the finished products of the blacksmith.

Iron Objects :

The vast assemblage of iron objects, found in the early historical sites, particularly at Peddabankur and Dhulikatta, is categorised mainly into weapons of war or defence, tools and implements for agricultural purpose, carpentry and household.

Weapons of War and Chase from Literature :

Various types of weapons and missiles were used even from the Vedic period. The *Attereya Brahmana*⁵⁷ speaks of "chariots, yoked with horses, armours, bows and arrows". These were the weapons of a Kshatriya. In *Satapatha Brahmana* we find reference to a thousand-spiked hundred-edged thunderbolt. According to the same authority an arrow measured five span in length. The *Swadhithi*, as mentioned in the same text, may refer to a carpenter's chisel, the chopping knife and razor. For slaughtering the horse in the *aswamedha* sacrifice, the knives were made of gold, iron and copper respectively to serve different purposes. A crooked or curved knife was known as *parśva*. The sword (*asi*), scimitar (*sasa*), staves (*danda*), sharp shovel (*abhri*), bows, armour were mentioned in the *Brahmanas*. The axe or *parasu* was used to cut fire wood and in battles as well. In the *Sukla Yajurveda*⁵⁸ God Rudra carries *hetu* (weapon of fire), *pinaka* (bow), *Dhanu* (small bow), *isu* (arrow), *vajra* (thunderbolt), *khadga* (scimitar), *asi* (sword), *nisanga* (sahre), *isudhi* (quiver), *sara* (thin arrow), etc.

In *Artha Sastra*⁵⁹ it is ordained that canals should be constructed inside forts for holding (hiding) weapons. In those canals there should be collected stone (to be used as missiles), spades, axes, staffs, cudgels, hammers, clubs, discus machines and such other weapons which could destroy hundred persons at once, together with spears, tridents, bamboo sticks with pointed edges made of iron, and explosives, etc. In Buddhist sculptures⁶⁰ from Amaravati, Sanchi, Mathura, etc. we notice mace, club, hammer, spear, lance, trident, bow, arrow, sword, shield, battle-axe, thunderbolt, dagger and *chakra*.

57. *Attereya Brahmana* 7.34-1, *op.cit.* 1863

58. *Sukla Yajurveda*, 1899. Translated by Griffith R.T.H., Banaras

59. Shama Sastry R., 1915, *op.cit.* p.59

60. Joshi N.P., 1967, *Life in Ancient Uttarapatha*, pp. 254-266.

Weapons from the Excavations :**(a) Spear-heads** [Plate 66 (a) and (b); Fig 9] :

The weapons of war or chase from Peddabankur included spear-heads, lance-heads and arrow-heads. All the three types of weapons are both tanged and socketed. The longest spear head has a 20 cm. long cutting-edge with a pointed tip. This has a socket of 1.5 cm. in diameter for introducing a long shaft. The second spear is tanged with one concave side and the other straight. The tip is broken. The tang with a square cross-section is 11 cm. long. The third spear, also tanged, has concavity on both edges and widens upwards to form into a pointed tip. The fourth, also tanged, is of square cross-section, and leaf-shaped.

(b) Lance-heads (Plate 67) :

Three solid lance-heads have the pointed ends and squatish in cross-section. Of these, one is socketed with its diameter widening downwards. The fourth is also socketed and has a short leaf-like cutting blade. The fifth, with a tang of square cross-section, is slightly damaged on one side. The leaf-shaped spear-heads are also found at Maski,⁶¹ Sisupalgarh,⁶² Taxila⁶³, Kausambi⁶⁴ and Nasik.⁶⁵

There are two more interesting lance-heads : one is lenticular in cross-section with a 8.5 cm. long blade with a tang; the other almost looks like an arrow-head but slightly bigger. The broad blade at the base tapers to a point at the apex.

(c) Spikes :

There is a unique spike with 23 cm. long and pointed nail, broadening at the base and again tapering to a tang of rectangular section. It must have been hafted to a long wooden shaft to be used by horsemen (Fig. 10, object no. 10).

(d) Arrow-heads (Plate 68; Fig. 10) :

There is a wide variety of arrow-heads, both tanged and socketed. Only the socketed ones are barbed. The cutting blade is usually in

61. Thapar B.K., 1957, "Maski-1954, A Chalcolithic Site of the Deccan", *AI*, Vol. 13, fig. 37, 38 No. 17 and 18, p.117

62. Lal B.B., 1948, Excavations at Sisupalgarh, 1948, An Early Historical Fort in Eastern India, *AI*, Vol. 5, fig. 10, obj. 23, 26 & 28, p.95

63. Marshall J., 1951, *Taxila*, Vol. II, pl. 546, type C. 63-68, type D. 69-70, type-E 67; pl. 164

64. Sharma G.R., 1969, *Excavations at Kausambi*, p.55, fig.7, No. 29, K.S.B. XIII C/181-59, 111-16.

65. Sankalia H.D. & Deo S.B., 1956, *Excavations at Nasik and Jorve*, fig.52, No. 1. p.27, No. 45, p.112

the shape of an isosceles triangle with 4 cm. long sides and a concave base to be hafted into the clefted socket. Among the socketed ones there are also arrow-heads with convex base; in that case they do not have barbs.

Barbed arrow-heads are previously recorded at Hastinapur, Kausambi⁶⁶ and Navdatoli.⁶⁷ The second variety are the tanged ones, which are sometimes as long as 9 cm. An arrow-head with such a long tang has a narrow cutting blade, about 1 cm. broad and 3 cm. long. These tangs would be inserted into the clefted wooden shafts. There is another unique variety of tanged arrow-head with a leaf-shaped lengthy blade, 8 cm. long, and 1.8 cm. broad. The clefted tang was hafted to the cutting blade to form the mid-rib. Tanged arrow-heads are commonly noticed in many early historical sites such as Sisupalgarh,⁶⁸ Prakash,⁶⁹ Maski,⁷⁰ Nasik,⁷¹ Taxila⁷² and Navdatoli.⁷³

Another arrow-head has a lenticular blade with the apex now damaged. There is one more interesting arrow-head which is short and lenticular, about 7 cm. long and 1.5 cm. broad. Both the ends of the blade are pointed. It was probably hafted at both the ends. The double-tanged arrow-heads from Taxila, unlike those found at Peddabankur, have tang over the tang under the base of the cutting blade. But the Peddabankur type have points at both the ends so that they could be shot or hafted either way.

Agricultural Implements :

(a) Sickles (Fig. 11) :

Only three types of agricultural implements could be distinguished. They are the sickle, or scythe, the so-called hoe and the spade. Among the sickles two varieties are noticed. One has the cutting-blade almost at right angles to the tang. The cutting-blade of the other takes a sweeping curve from tang. There is also one more variety which is almost semi-circular. The cutting-blades range in breadth between 2.03 cm. and 4.5 cm. and in length 23 cm. and 10.5 cm. The cutting-blades of those which are at right angles to the tangs are usually in the shape of an

66. Sharma G.R., 1960, *op.cit.*, fig.5, No. 889, p.49

67. Sankalia H.D., 1958, "Excavations at Maheswar and Navdatoli", fig. 110, No. 2054, p.51-53

68. Lal B.B., 1949, *op.cit.* fig.10, No.18 and 22, pp.93-95

69. Thapar B.K., 1964-65, Prakash, 1965; "A Chalcolithic Site in the Tapi Valley" fig. 41, No. 12, p.127

70. Thapar B.K., 1957, *op.cit.* fig.37 & 38, No. 17 and 18, p.117

71. Sankalia H.D. and Deo S.B., 1955, *op.cit.* fig.52, No. 3, 9 & 4, p.111

72. Marshall J., 1951, *op.cit.* type-A, 72, 75, 106-N. 48, p. 165 Text 548

73. Sankalia H.D., et al 1971, "Chalcolithic Navdatoli (The Excavations at Navdatoli, 1957-59), fig. 110, No.20, 53

are at the outer blunted edge. The tangs are sometimes 22 cm. long; the entire length apparently could not be inserted into the handle. Only the lower part which is thinner and 8 to 10 cm. long would be hafted. Sickles are the most common agricultural implement noticed at several places like Hastinapur,⁷⁴ Taxila,⁷⁵ Kausambi,⁷⁶ Sisupalgarh,⁷⁷ Piklihal,⁷⁸ Maski,⁷⁹ Prakash⁸⁰ and Pauni.⁸¹ It was also found in large numbers in Megalithic burials as at Brahmagiri,⁸² Sanur⁸³, etc. At both the places the sickles have almost semicircular cutting-ends. The specimen found at Piklihal⁸⁴ from layer-2 was compared to those found in many graves of South India.

(b) **Ploughshares** (Plate 69) :

The second important implement is the so called hoe found in many excavations such as Prakash,⁸⁵ Sisupalgarh⁸⁶, and Hastinapur,⁸⁷ and many other Megalithic sites. It consists of a curved cutting-edge about 7 cm. long. The flaps at the base were folded forward to form into a socket. In the common usage the hoe consists of a thin iron blade, fixed transversely on long handle for loosening or scraping up weeds. The splayed-out cutting-blade is wide enough to scrap off undulations or remove weeds, etc. But the implement from Peddabankur has more than half-a-centimetre thick cutting-blade and is only two and half to three centimetres broad. The length varied, including the socket, from fourteen to sixteen centimetres. Evidently the implement could only be a ploughshare. There are two solid blade fragments of iron; one is 6.5 cm. long and the other is 6 cm. The thickness at the butt-end is 1.5 cm. to 1 cm. These are the only specimens among the

74. Lal B.B., 1954-55, "Excavation at Hastinapura and Other Explorations in the Upper Ganga and Sutlej Basins", 1950-52, *AI Vol.* 10 and 11, fig. 32, No. 33, p. 100

75. Marshall J., 1961, *op.cit.* pl. 166, No. 119, p. 554

76. Sharma G.R., 1960, *op.cit.* fig. 8, No. 39, KSB. XIII; C/702/58/V-19, p. 56

77. Lal B.B., 1949, *op.cit.* fig. 10, No. 37, p. 96

78. Allchin F.R., 1969, *Piklihal Excavations*, Andhra Pradesh Government Archaeological Series, No. 1, pl. 55, No. 9, p. 108

79. Thapar B.K., 1957, *op.cit.* fig. 37, No. 34, pp. 118-119

80. *Ibid.*, fig. 41, obj. 15, p. 127

81. Deo S.B. & Joshi J.P., 1972, *Pauni Excavations*, fig. 17, No. 12, Pl. XLVII, No. 12, p. 84

82. Wheeler R.E.M., 1947-48, "Brahmagiri and Chandravalli", 1947, "Megalithic and Other Cultures in the Chitaldrug District, Mysore State", *AI Vol.* 4, fig. 38, Nos. 29 and 30, p. 259

83. Banerjee N.R., 1959, "Sanur, A Megalithic Site in District Chingleput", 1950-1952, *AI Vol.* No. 15, No. 25, p. 38

84. Allchin F.R., 1960, *op.cit.*, Pl. 56, No. 9, p. 108

85. Thapar B.K., 1964-65, *op.cit.* fig. 42, No. 24, p. 128

86. Lal B.B., 1949, *op.cit.* fig. 11, No. 36, p. 95

87. Lal B.B., 1954-55, *op.cit.* fig. 31, No. 17 and 18 p. 98

entire collection which could be designated in the modern sense as ploughshares, but the small pieces could be used as wedges rather than plough-shares. With such a large collection of sickles, the absence of ploughshares can be explained by the presence of the so called hoes which are really ploughshares.

(c) Spades :

The third variety of the implements is a spade. It has a 15 cm. long, presently damaged, and 9 cm. broad cutting-blade and 2 cm. broad and 14 cm. long tang, which itself might have served as handle (Fig. 12, object no. 2).

Blacksmith :

Blacksmith or *Karmara* (*kammari* in Telugu) occupied an important place in the village economy. Panini⁸⁸ enumerates the tools of a blacksmith as the bellows (*bhastra*), the sledge-hammer (*ayoghana*), axe (*drughana*), and tongs (*kutlaka*). Interestingly the Peddabankur excavation has yielded a terracotta forge, adzes and tongs. *Ayoghana* may also mean anvil but unfortunately not even one specimen came to light. There are also no sledge-hammers. Tongs (*kutlaka*) is represented by a single specimen consisting of two limbs, connected by a hinge for grasping and lifting objects from the forge. Two such tongs were found at Taxila⁸⁹ excavation.

Carpenter :

The carpenter (*taksan*) was the other most wanted artisan during the period under review. The walls of the buildings were raised with well-burnt bricks but the entire superstructure was made up of wood, whether of a terraced or gabled roof. Timber was cut down from the forests which covered extensive tracts, compared to the present day.

Tools :

The carpenter's tools included axes, adzes, chisels, drills, saw-blades, etc. The axes from the early levels are simple flat celts. The axes with the shaft hole, concave sides and splayed-out cutting-edge come only from the 2nd-1st century B.C. and upwards.

(a) Flat Celts (Fig. 12, object Nos. 1 and 5) :

There are three celts from Peddabankur. The first has slightly concave sides and large cutting-edge, more than 17 to 18 cm. long and 10 cm. broad. The second object is a long celt about 18 cm. long. The cutting-blade which is 5 cm. at the butt-end gradually splays out to

88. Agrawala V.S., 1953, *op.cit.* p.70

89. Marshall J., 1951, *op.cit.* No. 130-131, p. 554

8 cm. breadth. The third implement is smaller than the above two, with a 6 cm. broad butt-end and 9 cm. cutting-end. The sides are roughly concave. The flat celts are usually found in many other excavations such as Prakash⁹⁰, Nagda⁹¹, Ujjain⁹², etc.

(b) Axe with Shaft-Hole :

The second type which is found in the later levels is an axe with shaft-hole. It has concave sides and splayed-out cutting-edge. No shaft-holed axe was noticed at Peddabankur. The axe from Dhulikatta is 10.5 cm. long and as the cutting-end is damaged the width could not be measured. Similar specimens came from Prakash⁹³, Kausambi⁹⁴, Maski⁹⁵, and Taxila.⁹⁶

(c) Adze (Fig. 12, object no. 3) :

The second and the most common tool of the carpenter is the adze. All those found at Peddabankur have shaft holes. The total length of an intact adze is 18 cm., including the hole, the shaft hole having a diameter of 4 cm. The adze is three cm. thick near the shaft hole and gradually attenuates towards the cutting-edge. Socketed adzes were earlier reported from Hastinapur,⁹⁷ Taxila⁹⁸ and Kausambi.⁹⁹

(d) Chisels :

There are four chisels recovered from Peddabankur; one has 24 cm. long and 9 cm. broad blade of square cross-section. The butt-end is thickened. The second one is 16 cm. long and 1.2 cm. broad. Pieces of the hafted wooden handle still adhere to the butt-end. The third chisel is 11.5 cm. long and 1 cm. broad, with prominent lugs at the butt-end, presumably to arrest downward thrust of the handle when hit by hand. The fourth one is shorter than the above three but broader. It is 9 cm. long and 2 cm. broad. The tang is broken. Chisels are common in early historical levels, analogies of which come from Hastinapur,¹⁰⁰

90. Thapar B.K., 1964-65, *op.cit.* fig. 41, No. 13 & 14, p.127

91. Cited by Thapar B.K., *ibid.* p.127

92. Banerjee N. R., 1957-58, "Excavations at Ujjain", *Indian Archaeology - A Review*, Pl. XLIV. B, pp. 32-36

93. Thapar B.K., 1964-65, *op.cit.* fig.43, No.29,30, pp. 127-128

94. Sharma G.R., 1960, *op.cit.* fig.8, pl.41, KSB XIII, C/110-59/IV, 19, p.36

95. Thapar B.K., 1967, *op.cit.* fig.52, No.10 and 12, p.27

96. Marshall J., 1961, *Taxila*, Vol. 3, No. 103, p.166

97. Lal B.B., 1954-55, *op.cit.* fig. 32, No. 26, pp.99-100

98. Marshall J., 1951, *op.cit.* Type-A, pl. 166, No. 112, Type-B, Pl. 166-114

99. Sharma G.R., 1960, *op.cit.* fig.8, No. 39, p.56

100. Lal B.B., 1954-55, *op.cit.* fig. 31, No.12, p.98

Taxila,¹⁰¹ Sisupalgarh,¹⁰² Prakash,¹⁰³ Nasik,¹⁰⁴ Kausambi¹⁰⁵, and Maski.¹⁰⁶

(e) Nails (Plate 70 - bottom row) :

Among the other objects of carpentry mention may be made of nails, rivets and staples or loops.

The nails are mainly of two types-round-headed and flat-headed. A nail, about 23 cm. long, from Peddabankur suggests the thickness of timber used for buildings. It has a round-headed point at the top and of round cross-section. Other nails are mostly square in cross-section. Some nails have flat heads. After driving into the timber, it was bent for riveting.

(f) Rivets (Plate 70 - top row) :

There is a large collection of rivets both from Peddabankur and Dhulikatta. It consists of a nail of square or rectangular cross-section, riveted to 3 to 3.5 cm. square plates on either side. A rivet from Dhulikatta has two nails riveted to two long plates on either side. The plates measured 14 cm. long and 2½ cm. broad and the nail is 5 cm. long, which would be the thickness of the timber to which it was riveted.

(g) Staples :

The staples are thick nails of rectangular section with loop at one end and pointed at the other to be driven into the timber. Two staples are found at Peddabankur; one is 12.5 cm. long including the loop with a diameter of 2.5 cm. The nail portion of the second staple is broken. The loop is 3 cm. in diameter. Staples were also noticed previously at Sisupalgarh.¹⁰⁷

Domestic Implements :

Peddabankur and Dhulikatta have yielded a rich crop of domestic implements, constituting choppers, knives, razors, tongs or fork, lamps ladles, domestic trowels, balancing rods, keys, stylus or engraver, antimony rod, finger or toe-rings, balancing rod and ferrules.

101. Marshall J., 1951, *op.cit.* Type-B and C., pl.166, No. 119 to 121 A, p.553

102. Lal B.B., 1949, *op.cit.* fig.9, No.8 and 9, p.93

103. Thapar B.K., 1964-65, *op.cit.* fig. 40, No.4 and 10, pp.123-125

104. Sankalia H.D. & Deo S.B., 1955, *op.cit.* pl. XXVI, No.11, fig.16, p.114

105. Sharma G.R., 1960, *op.cit.* fig. 7, No. 36 KSB. XIII-C/515-58/IV. 19, p.55

106. Thapar B.K., 1957, *op.cit.* fig. 37, No.15 and 16, p.117

107. Lal B.B., 1949, *op.cit.* fig. 9, obj.13 & 14, p.93

(a) Choppers (Plate 71) :

There is a single big chopper with a 22.5 cm. long and 5 cm. broad blade and straight cutting-edge. The blunted back splays out to the apex where the blade becomes broader. It has a 10 cm. long tang which tapers down.

A similar chopper found at Taxila¹⁰⁸ has a sheath at the corner, for handling.

The second type of chopper, also from Peddabankur, has both the cutting-edge and blunted back, take an upward curve to meet at the pointed apex. The blade is 27.5 cm. long and 4 cm. broad at the tang.

In the third variety the cutting-edge takes an upward curve from the middle while the blunted back broadens from the middle and then takes a downward curve to meet the cutting-edge at the apex. Usually the blade becomes broader from the middle upwards and downwards, thus maintaining concavity below the middle. It is 26.5 cm. long from the tang upto the tip and 3.5 cm. broad above the middle. The 5 cm. long broken tang is rectangular in cross-section and tapers down.

The cutting-edge of the fourth one is concave above the tang and takes downward curve above the middle and then abruptly curves upward to meet the straight-blunted back at the backward curving tip. The sharp-curved tip or apex is useful for paring off skin from the flesh. The blade which is wider below the pointed apex would give sufficient momentum to the knife to strike hard.

The fifth type must have functionally served the same purpose as that of previous type. But in this case, the blade is concave below the middle and takes a downward curve to meet the blunted back at the pointed apex.

The sixth is smaller than the above knife, with concave sides near the tang. Both the cutting-edge and the blunted back take wider curves to meet at the pointed apex, which is in a straight line with the tang. The knife blade measured 16 cm. long upto the tang, which is broken. This shape is typical of the spear-heads; the only difference being that the latter has both sides sharpened, whereas the former is blunted at the back.

(b) Knives:

The type of knife from Peddabankur is usually found in a vegetarian kitchen. The 2 cm. broad blade gradually tapers upwards the pointed apex to take a backward curve. There are only two

108. Marshall J., 1951, *op.cit.* Class XXVII, No. 127, pl. 166, p.554

specimens of this type; the rest twenty, which are chopping knives, may pertain to the non-vegetarian kitchen.

The next type, smaller than the above, has almost a straight cutting-edge. The blunted back curves downwards to meet at the sharp edge at the pointed apex. This is quite handy to cut smaller fish for the table.

The other type is a little smaller with a 10 cm. long and 2.3 cm. broad blade. The sharp edge takes an upward curve towards apex to meet the straight blunted back. The square sectioned tang is broken and presently measured only 3 cm. in length. This knife is commonly used for killing the fowl by cutting its neck or for removing scales and gills of fish.

The last type which comes from Dhulikatta has its curved cutting-edge taking a backward sweep like an arc and forming into a hook at the apex. The tang has a loop evidently to suspend the knife with a thread. The present day shepherd community carry this kind of knife in their waist belts for cutting twigs, leaves and green seeds of acacia etc. for the sheep.

(c) Razors (Plate 72) :

Of the three razors found at Peddabankur one is bigger and the other two smaller. The cutting-edge of the bigger knife takes a backward sweep and widens at the curved top. The tang is 8.5 cm. long. The other razor is damaged at the top and has 1.5 cm. broad cutting-blade. The razors of this type, but for their occurrence at Taxila, are rare.

The bronze razors found at Mohenjodaro¹⁰⁹ have two holes, at one end to be riveted to a handle which was set at right angles to the blade as suggested by Mackay. But it could also be set vertically to the cutting-blade. The other razor, also from Mohenjodaro, looks like a miniature battle-axe but described as a razor.

An iron object from Taxila¹¹⁰ was described as straight-edged knife, about 10 cm. long. It has a side tang parallel to the blunted back. Functionally it must have served as a razor than as a knife as the side tang is parallel to the blunted edge. When hafted to a wooden handle it would be more convenient to be used as a razor.

(d) Fork :

There is a single specimen from Peddabankur, which is of doubtful identification. It consists of two prongs, riveted together at the butt-

109. Marshall J., 1973, (Reprint), *Mohenjodaro and the Indus Civilisation*, Indological Book House, Vol. II, Varanasi, pl. CXXXVII, obj. No. 5, p.600

110. Marshall J., 1951, *op.cit.* No. 122, p.454

end and separated below. The prongs are thick and cannot be pressed together as to be used as tweezer. Apparently the implement could only be used as a fork.

(c) Lamps (Plate 73) :

There are two varieties of lamps at Peddabankur. The first type has a shallow dish, about 4.5 cm. in diameter with a vertical handle bent backwards at the top for suspension. The other lamp had a bigger dish, about 7 cm. in diameter; but the handle is broken. The other variety of lamp is a solid dish with an out-curved lip. The dish was riveted at the base to a horizontal handle. This kind of lamp was possibly used for religious purposes as offering lamp to the deity.

The lamps found at Taxila¹¹¹, with a vertical handle, was described as ladles. A similar object found at Nasik¹¹² with a vertical handle was described as lamp or ladle.

(f) Ladies [Fig. 13 - objects (5) and (6)] :

There are two ladles from Dhulikatta. One of them has a deep cup and a horizontal handle. The cup is 6 cm. in diameter and 2.5 cm. deep. The handle is broken at the middle. The other ladle has a very shallow cup, like that of a lamp, with a diameter of 4.5 cm. and a depth of 0.5 cm. The 18 cm. long handle has a square cross-section. Analogies of ladles are noticed at Taxila,¹¹³ Pauni¹¹⁴, and Nasik.¹¹⁵

(g) Domestic Trowels (Fig. 14) :

Out of the kitchen repertory mention may be made of the domestic trowels. There are two types of which one comes from Peddabankur and the other from Dhulikatta. The trowel from Peddabankur has concave sides and a splayed-out cutting-edge. But for the tang at the middle of the base, the object could as well be designated as a battle-axe based on the shape of which it has, perhaps, evolved. The other type is a common trowel with a splayed out and straight-cutting edge. The sides gradually taper to the tang.

(h) Locks and Keys :

Unfortunately no lock has survived. But two objects, which could be easily distinguished as keys, came to light. One key with a

¹¹¹ Marshall J., 1951, *op.cit.* No. 24, 25 Class VI, pl. 126 n., p. 542

¹¹² Sankalia H.D. & Deo S.B., 1955, *op.cit.* fig. 52, No. 13, pl. XXVII-II, p.114

¹¹³ Marshall J., 1951, *op.cit.* Class VI, No. 24 & 25, pl. 162, I, p.542

¹¹⁴ Deo S. B. & Joshi J. P., 1972, *op. cit.* pl. XLVII, No. 10, fig. 17, No. 10, p.84

¹¹⁵ Sankalia H. D. & Deo S. B., 1955, *op. cit.* fig. 52, No. 52, No. 13, pl. 77 No. II, p.114

disc handle has its nail-end missing. The other key has a round disc handle. A small round plate was riveted at the other end.

The keys found at Taxila¹¹⁶ have ringed handles and a set of teeth at the other end.

(i) **Ferrules (Plate 74) :**

There is a large collection of rings used as ferrules or casings. There are two cylindrical rings of equal height of 4.5 cm. This is still commonly used as the hub of a wheel, which rotates along with the wheel around the axle. The other type of rings is a simple ferrule used for strengthening the ends of mullers or pestles. One such specimen has a diameter of 5.5 cm. with a wall height of 1.5 cm. Another smaller ring with a diameter of 2.5 cm. could be used as a ferrule for a walking stick or such other article.

(j) **Finger or Toe-rings :**

There are 3 rings, perhaps, used as finger or toe-rings, with a diameter of one and a half to two centimetres. Out of these two are spiralled and one is bezelled. Spiralled finger rings have been noticed in the cist burials with passages at Peddamarur. Several iron beads, formed of small strips of iron, coiled up like a volute spring, were found in a cist grave at Kodidhasinur¹¹⁷ near Karaimadai R.S. in Coimbatore district.

(k) **Stylus :**

There is a single 12.3 cm. long specimen of a stylus. The thickened middle portion is square in cross-section and tapers to both the pointed ends. Similar stylus with square section was recorded at Hastinapur¹¹⁸ and Brahmagiri¹¹⁹.

(l) **Antimony rod :**

A single 14.5 cm. antimony rod or pin comes from Peddabankur, one end is thickened and rounded, the other tapering and pointed. Copper antimony rods were more common than iron rods. An iron antimony rod found at Peddamarur in Mahbubnagar district occurred in the Megalithic context.

(m) **Balancing rods (Plate 75) :**

There are seven balancing rods of iron, five longer and two shorter. The longer ones have an average measurement of 36 cm.

116. Marshall J., 1951, *op.cit.* No. 48 to 63, pl. 164, p. 544

117. Cited by Gura Raja Rao B.K., 1972 *op.cit.* p.274

118. Lal B.B., 1954-55, *op.cit.* fig. 32, No. 10, p. 97

119. Wheeler R.E.M., 1947-48, *op.cit.* fig. 40, obj. 47, p. 260

rounded all over and thickened in the middle. The smaller ones measured 25 cm. long, both being equal in length. As there are no perforations to strings of pans, it appears, they were simply tied at the two ends. In the Buddhist sculptures at Nagarjunakonda¹²⁰ we find the representation of a balance from a panel illustrating Sibi Jataka. There is a single-scaled balance, consisting of a horizontal rod and a weighing pan at one of its ends. The pan appears suspended by means of three or more strings. A close study shows that the beam is graduated by small incised marks all over at regular intervals towards the pan-end. Also at Amaravati¹²¹ the sculptures, illustrating the Sibi Jataka, revealed single-panned balances.

(n) Snake (Plate 76) :

One more interesting object is an iron figure of a snake with an 'S' curve at the head and a straight body below. It is 58 cm. long from the end of the curve. Two holes were perforated near the top of the head at the place of the eye-sockets and one hole below the nose intended to represent the eyes and mouth. These perforations could also be used for riveting to the door or wall with nails. There is one more perforation at the end of 'S' curve, also intended for riveting. The back of the figure is flat and the front is round. The horizontal stripes of the snake are represented by bands of parallel incisions at four places over the body.

Copper Objects :

There is a considerable number of copper antiquities from Peddabankur and Dhulikatta, which included antimony rods, styli, finger rings, ear spoons, bangles, ladles, amulets, ankle rings, pins, etc.

(a) Antimony-rods [(Plate 77 Nos. (1) to (5)] :

The antimony-rod is thickened at both ends. The sizes vary from 16.5 to 11 cm. The second variety has one end thickened and the other end thin and pointed like a needle. A needle measured 8 cm. and has one end pointed, the other is thickened. This could be used as a sewing needle, or stylus.

(b) Sewing Needle [(Plate 77 Nos. (6) and (7)]

This is a semicircular and pin-pointed at both the ends like a suturing needle of a surgeon, but is very thick in the middle. It must have been used for sewing leather pouches, etc.

120. Krishna Murthy K., 1977, *Nagarjunakonda-A Cultural Study*, p. 228

121. Sivaramamurthy C., 1966, "Amaravati Sculptures in Madras Govt Museum", *Bulletin of Madras Govt. Museum, New Series, Vol. IV*.

(c) Toothpick [Pl 77 no. (8)] :

There is a small pin, about 4 cm. long and with a loop at the thickened end while the other end is thin and pointed. It may have been used as a toothpick or to remove thorns from the soles.

(d) Ear-cleaner [Pl 77 no. (9)] :

There is a small pin with one end flattened like the head of a snake and the other pointed.

(e) Finger rings [Plate 78 (a) and 78 (b)] :

The finger rings are mainly of two varieties: one is a coiled circlet and the other bezel, sometimes inscribed with the name of the owner or with designs. Among the coiled ones a few rings have 7 to 8 coils, while some only two. There is also a simple wire ring. Among the wire rings some are thick, while the others are thin or flat.

There are three rings with bezels; one is plain, the second inscribed and the third incised with designs. The bezels are either rectangular or almond-shaped or oval. One ring, with a circular bezel, is inscribed with four Brahma letters at the four cardinal points of the circle reading as 'ARALASA'.

One ring has a double-grooved incised design in the shape of an eye over the bezel. It is a favourite design usually represented to ward off evils.

(f) Bangles and Anklets (Plate 79) :

The bangles are plain without any ornamentation. An anklet of thin wire has one end coiled and looped and the other hooked. The (clinical ?) needles in crescentic form.

(g) Amulets :

There are three amulets; one is cylindrical, the other is a square hollow box, and the third is a square plate. The front side of the square one is stamped with the figure of a deity, with his back foot raised and resting on the toes, the front firmly placed on the ground and the two hands upraised. The head is animal-like but the other traits resemble those of the Monkey God. The figure is embossed within the square box of incised lines.

(h) Ear-studs (Plate 80) :

The spools are of two types. One is hollow with a concave body with its drums decorated with concentric grooves. The other is a solid spiralled strip of copper. Both are perforated at the middle of the drums.

(i) Spoon :

There is a shallow spoon with the cup, measuring 3.8 cm. in diameter, and a 6.5 cm. long handle of square section. This may be useful for the apothecary for mixing ingredients or herbs, etc.

(j) Stylised Palm [Plate 78 (a); objects nos. (1), (2) and (3)] :

There are three indistinct objects in the shape of stylised palm with 4 or 5 spikes over a flat circular rim. The rim is sometimes decorated with a beaded design over concentric lines. One such palm has four spikes and the other five spikes with little tines in the shape of an antler of a deer. With our present knowledge we can only describe them as finger-guards worn while sewing with needle. On one of the potsherds at Hastinapur¹²² a similar design was stamped, probably, to represent a cult object.

(k) Jewel Box (Plate 81) :

Mention may be made of a jewel box which consisted of a shallow dish and a knobbed lid. The dish has a prominent cord at the rim to hold the lid. There is an embossed circular cord over the base inside. The rim of the lid is decorated with stepped mouldings and a prominent cord around the knob. The box was perhaps used for keeping valuable ornaments, etc. Similar jewel boxes (*abharana samudgaka*) are represented in the sculptures. At Nagarjunakonda¹²³ the jewel box is represented in a panel illustrating "Prince Siddhartha in the pleasure garden". A female attendant is shown carrying a rectangular box on her head. The Jataka tales¹²⁴ refer to such boxes, but they are generally made of costly material, like ivory, etc. In the Jaina¹²⁵ literature it is mentioned that the round caskets were used for keeping oil or *anjana*. In the Sanchi sculptures¹²⁶ a round casket similar to the Peddabankur type is shown hanging from the branch of a tree.

(l) Copper Rattle :

The rattle found at Peddabankur in the Satavahana level was beautifully moulded in the shape of a frog-like animal, with two circles having central pellets, representing the two eyes and a beaded line in the middle. There are also two prominent bands across the forehead. The rattle has a loop for suspension. It has a clefted mouth and a

122. Lal B.B., 1954-55, *op.cit.* pl. XXXI(4), p.70

123. Krishna Murthy K., 1977, *op.cit.* p.156

124. *Jatakas-I*, 1895, No. 92, p. 24, translated by Cowell E.B.

125. *Ravaprasenya Sutta cum Abhayadeva Khandika*. 126, Ahmadabad V.S., 1894

126. Marshall J., Foucher A., 1939, *The Monuments of Sanchi*, pl. XIII

small ball of copper was put into the hollow body for producing rattling sound.

The common variety of rattles found at Taxila¹²⁷ are of terracotta and in the shape of a bird. Other rattles from Sirkap area take a quasi-human or animal form to simulate the pomegranate fruit or vases. A copper rattle from Maski¹²⁸ is a simple one without any form and of double loops for suspension.

m) Bronze or Copper Figure (Plate 82) :

Dhulikatta excavation yielded a bronze or copper figurine of the mother-and-child (*ankadhatri*). The mother is seated on a pedestal with legs dangling. She holds a baby in her left hand, while the right hand rests on her knee. The baby flexes its left hand, to touch the left breast of the mother. The hair, eyes, mouth and ornaments such as ear-rings, torque around the neck, another broad necklace, armlets, bracelets, waist band and another headed *mekhala* were crudely made in applique. On the grounds of stratigraphy the figure may be dated to circa 2nd century B.C. The crude modelling of the figure is in conformity with the archaic terracottas found in the same level.

The mother, with a child in her arms, may probably represents the fertility cult but strangely enough its representation in the Mauryan and Sunga art¹²⁹ is extremely rare. It becomes common in the Satavahana and Kushana art in stone sculptures and terracotta figures. In Gupta period numerous plaques of the mother and child come from various sites in the Gangetic valley. The standing woman holds the child in her left arm but in some cases the child touches the breast of the mother with its right hand. Agrawala¹³⁰ has classified the figures with the similar theme into three types namely *kshiradhatri*, a woman with a suckling baby in arms, *kridadhatri*, a woman with a child in the left arm and a ball or rattle in the right hand, and *Maladhatri*, one who bathed the child and washed the linen. There is one *ankadhatri* figure from Yeleswaram¹³¹ excavation from the Ikshvaku level. The mother holds the baby in her left hand and her right hand simply resting over the thigh. It appears the figure was made of a single mould.

127. Marshall J., 1951, *op.cit.*, Vol. II, p.458

128. Thapar B.K., 1957, *op.cit.* fig. 34, obj. 7, p.115

129. Gupta P.L., 1972, *Gangetic Valley Terracottas*, p.52

130. Agrawala V.S., 1947-48, "Terracotta Figurines from Ahichchhatra, District Bareilly, U.P.", 1940-44, Pl. I.I., p.147, *AI*, Vol. 4

131. Noorjahan Begum, "Ankadhatrī from Yeleswaram", *APJA*, Vol. I, Part I pp. 93-95

Lead Objects :

Pliny¹³² says that India had neither brass nor lead but exchanged precious stones and pearls for those metals. According to Periplus,¹³³ lead, copper and tin were imported into Barygaza, Muziris and Nelcynda. We may infer that the Karimnagar region, as the other parts of India, was not sufficiently producing these metals in the early historical period but depended on the imports from Rome and other western countries¹³⁴ such as Spain and Britain.

Lead, together with copper, was chiefly imported for the coinage, which was also made into thin sheets for providing foils in the manufacture of mirrors¹³⁵.

The excavation at Peddabankur has yielded many coiled strips of lead, the purpose for which it was utilised is puzzling. These coils appear like spools with concave body. Some coils have small perforations in the middle. Among the copper objects a similar spool, with concave sides and decorated with concentric circles, was described as an ear-spool. Similarly the lead spools, with concave sides, might have served as ear-spoons. The perforation in the middle may suggest that they were as well used as pendants.

Bead and Bangle :

Among the other lead objects is a concave barrel-shaped bead with bulbous drums on either side having a transverse perforation. A bangle, 4 cm. in diameter, is decorated with peripheral serrations like the cogs of a wheel.

Gold and Silversmithery :

Pliny¹³⁷ distinctly states that the gold from the Ganges was exported to the Roman Empire. It would be the alluvial gold of the rivers in the Chotanagapur¹³⁸ plateau, probably found in dust form.

Goldsmith or *suvarnakara* was always patronised by the wealthy sections of the society. Gold appears to have been a rare

132. Cited by Warmington E.H., 1928(reprint, 1974), *The Commerce Between Roman Empire and India*, p.267-8, Vikas Publishing House, Pvt. Limited, Delhi.

133. Schoff W.H., 1974 (second edition), *The Periplus of the Erythraean Sea*, pp.49, 56

134. *Indian Antiquary*, 1874(reprint, 1969), Vol. LI, pp. 141-2, R.N. Dhandekar Felicitation Volume

135. Mitra R., *Antiquities of Orissa*, Vol. I, pp.100-101

136. Cited by Warmington E.H., 1928 (reprint, 1974), *op.cit.*, p.258

137. Warmington E.H., 1974, *op.cit.*, p.258

138. Shama Sastry R., 1915, *op.cit.*, p.87

metal in this region and possibly imported from the mines of Karnataka, as no gold mine is so far reported in the neighbourhood.

There are very few objects from Peddabankur and they are mostly beads, made of thin foil of gold. There are also two short octagonal beads. The gold beads of thin foil are sometimes decorated with radiating lines around the string hole, enclosed by dotted oblique bands. The periphery was decorated with gadroons. As the foil is very thin and the bead is hollow it is not known whether it was plated over lac or provided with some metallic support inside. However, it is noticed that a cylindrical turquoise glass bead was set inside against the perforations so that the bead could not be squeezed together with threading and usage. Another designed foil of a bead was found in small fragments. It was stamped with the design of a beaded circle, enclosed by dotted oblique lines and elliptical cusps.

There is a necklace of 34 beads; 24 of amethyst, 7 of lapis lazuli, 2 of gold and one of jasper. The amethyst and lapis lazuli beads are irregular spheroid in shape and the two small gold beads are multifaceted. The necklace must have had 24 beads which makes up *ardha guchcha* as prescribed by Kautilya.

The dearth of the precious metal is manifested from the objects found at Dhulikatta as well. They include a ring with eleven spirals. The rest are beads, among which there are three tabloid, three spherical (small and big), two gadrooned, and one with beaded double bands. The gadroons join two small rings on either side, serving as string holes.

The excavation at Kotilingala yielded a beautiful gold beaded necklace. The beads are in the shape of gadroon, vajra, sun disc, Nandipada, frog and tortoise (Plate 83).

Silver objects :

Silver is comparatively rare and represented only by a waist-band of beads. These beads, 21 in number, are tabloid with lugs on either side. Each bead is 2.3 cm. in diameter and 3.5 cm. long. They are hollow inside and made of thin sheet of silver (Plate 84-bottom row).

Bone, shell and horn crafts :

Besides metal-smiths, the artisans of bone, shell and horn had a very flourishing profession. It appears that material of the above three types was used for different purposes. The horn objects mainly consisted of arrow-heads and beads, the bone objects of game-dice and the shell objects of ornaments such as ear-rings, finger-rings, beads and bangles.

Arrow-heads [Plate 85, Nos. (7) and (8)] :

Besides arrow-heads of iron, there are a good number of horn arrow-heads. It was a cheaper and easily available material. The flesh of the hunted animals such as deer, goat, etc. was consumed while the horn was converted into objects of daily use. We find references in Rigveda to arrow-heads of bone and iron (R.V. IV 75, pp.4-17).

The horn arrow-heads are mainly of two varieties - one is pointed at one end and is faceted by chiselling at the other. The other arrow-head is pointed at both the sides. One arrow-head, pointed at one end and faceted at the other, measured 10 cm. long. The other arrow-head measured 6.5 cm. One was incised with parallel grooves at the faceted end for holding the strings of the thread while huffing. There are two specimens of horns directly used perhaps as arrow-heads without smoothening the middle portion. Both ends were chiselled. One such antler arrow-head measured 11 cm. long and the other 9.5 cm. Similar object found at Hastinapur¹³⁹ was doubted as stylus. But a stylus needs no chiselling at the butt-end. It might be a needle for weaving nets.

Arrow-heads made of bone, ivory, and horn were noticed in Kausambi¹⁴⁰ excavations, their main concentration being in the N.B.P. ware Culture.

Bone points or arrow-heads, noticed at Nasik¹⁴¹ in the Andhra levels, are of two types, viz. double-ended points and tanged or chiselled points.

Incision rods :

All the points from Peddabankur were made of horn. The double-pointed specimens could also be used as styli or pins. In the vicinity of a potter's kiln, recovered in the excavations at Peddabankur, a bone point was also found among other objects. It might have been used by the potter for making decorative incisions on the pots.

The other objects of horn included two handles, possibly, of mirrors; one is decorated with mouldings of torus and reed beautifully turned on lathe. The other object, probably of ivory, decorated with mouldings of torus, is much smaller and might have been used as a handle for antimony rod¹⁴², etc., as suggested by Sankalia.

Bone objects:**(a) Dice** [Plate 85, Nos. (1) to (4)]

In Rigveda, dicing is referred to as *akshadyuta*. In the *Asthadhyayi* of Panini the *akshadyuta* was elaborately dealt with.

139. Lal B.B., 1934-55, *op.cit.* pl. LX, No. 10, p.105

140. Sharma G.R., 1960, *op.cit.* p.47

141. Sankalia H.D. & Deo S.B., 1955, *op.cit.*, pp. 123-126

142. *Ibid.*, fig.55, p.119.

A player of dice, according to Pathanjali, was known as *akshika* and a gambler as *akshakitava* (Pathanjali Bhashya-1-390). *Kitava* or a gambler was an old Vedic word (Vedic index-1-156-7). Kautilya refers to the Superintendent of Gambling who supplied *aksha* and *salaka* to the players at the rate of *kakani* as hire per pair. The *akshas* seem to have been cubicals and *salakas* are oblong pieces marked on the sides with circles or points. In the *Taittiriya Brahmana* (Tait. Brah. 1.7-10), 5 dice are referred. The pieces are called *aksharaja*, *krita*, *treta*, *dvapara* and *kali* (Vedic index-1). The circlelets with dots commonly noticed on the dice are probably known as *ekapari*, *dvipari*, *tripari* and *chatuspari*. *Pari* or *paridhi* literally means a circle.

In Bharhut sculptures¹⁴³ the *akshas* are shown as little cubes. In the scene of the Litta Jataka at Bharhut the game-board (*dhyutaphalaka*) has 26 squares. The number of cubical dice visible is six. Another illustration of a similar game is seen at Bodhgaya. The square board has 8 squares on each side and therefore the game seen here may be identified as the *attapada* game of the Vinaya¹⁴⁴ texts. A game board of dice, incised on one of the slabs of bathing-ghat at Nagarjunakonda, has eight squares in each wing. Krishna Murthy¹⁴⁵ identified the same as *attapada* as referred to by Buddhaghosha. The game boards on the flooring slabs of the 48-pillared hall near the Ikshvaku burning-ghat have two, three or five rows and each board is having the same number of squares respectively in each of its rows.

The bone objects from Peddabankur mainly constituted game-dice of two types. One is oblong and the other cubical, majority of them being oblong. Each of the four facets consists of one circle with a middle dot on one side, two on the other, three on the third and four on the fourth. Sometimes the side with four circles has on the opposite side three circles and sometimes two. But in many cases the even number circles are opposite to even numbers and the odd against odd numbers i.e. the face with four circles has two circles on the opposite side and the one with three circles has one circle on the opposite. The dice are of various sizes; one measured 8.4 cm. long and 2 cm. broad. A cubical dice has 1.8 cm. big dice broad sides. A dice of horn measured 3.5 x 1 cm. Among the dice found at Yeleswaram and Nasik¹⁴⁶ there are two or three concentric circles with a dot in the middle. In Taxila¹⁴⁷ a good number of dice has been reported from the Indo-Greek and Saka-Parthian levels.

143. Cunningham A., 1879, *Stupa of Bharhut*, London, pl. XLV

144. *Vinaya Text I, Chulla Vagga I*, 13, pp. 1-3, Translated by Davids T.W.R. & Harman Olden Berg, Sacred Books of the East Series (Oxford 1883)

145. Krishna Murthy K., 1977, *op. cit.* p. 223

146. Sankalia H.D. and Deo S.B., 1955, *op. cit.* fig. 55, obj. 12, p. 120

147. Marshall J., 1951, *op. cit.*, pl. 32 and 92, pp. 125 and 209

Shell objects (Plate 86-bottom row) :

While the rich people were wearing bangles and other ornaments of gold, the common folk resorted to shell ornaments, such as bangles, finger-rings, ear-rings, etc. The shell bangles usually do not have any decoration and most of them were found in fragments. An ear-ring measured 2.4 cm. in diameter and the tyre measured 0.6 cm.

Gem Industry :

Artha Sastra¹⁴⁸ mentions several kinds of gems and their colours. The gem which has a pleasant colour as that of a red lotus flower or that of *parijatha* flower or of the rising sun was known as *saugandhika*. It is possibly a variety of carnelian. The gem, which has the colour of a blue lotus flower or of *sirisha* or of water or of fresh bamboo or of the colour of the feathers of a parrot, was known as the *vaidurya*. The *pushyara*, *gomutraka* and *gomedhika* are the other varieties of the same. The *indranila* or sapphire is characterised by blue lines, or is intensely blue, or as blue as clouds. *Nandaka*, *sravanamadhya*, *sitavrishti* or *suryakantha* (sunstone) are the other kinds of gems. The colour of a diamond may be like that of a cat's eye or of the flower *sirisha* (acacia *sirisha*), the urine of cow, the bile of a cow, alum (*sphatika*), or the flower of *malathi*, etc.

Bead-making was a prosperous industry in the early historical period. The common semi-precious stones used for beads are carnelian, agate, banded agate, garnet, bloodstone, beryl, jasper, amethyst, quartz-crystal, lapis lazuli, besides glass, terracotta and shell. There are also etched beads of both carnelian and agate.

(a) Etched Beads (Plate 87) :

Among the semi-precious stones there are two varieties that invite special notice *viz.* the etched carnelian and agate. There are three etched carnelian beads; all are truncated barrel in shape. Two beads have white painted designs of chevrons, with marginal bands on either side. The second variety has a middle band of horizontal strokes enclosed by double bands on either side. The etched agate bead is also truncated barrel in shape and decorated with double chevrons, enclosed by double marginal bands.

The beads with chevrons inside marginal bands are very common among south Indian Megalithic burials. It appears that the pattern continued in the Satavahana period as well. Those from the Megaliths are usually barrel-shaped, but the plain cylindrical¹⁴⁹ seem to have been preferred in the Satavahana period.

148. Shama Sastry R., 1915, *op.cit.*, p.86

149. Dikshit M.G., 1949, *Etched Beads in India*, p.28

They are distributed over a very large area and are known to have been found at Nilgiris, Chandravalli, Kondapur, Kolhapur, Maski, Paithan, and Sanganakallu.¹⁵⁰

The antiquity of etched carnelian beads may be traced to Mohenjodaro¹⁵¹ and Harappa,¹⁵² dating from 3rd millennium B.C. The etching of these beads in which the pattern appears white on the natural colour of the stone is produced by drawing the pattern on the stone with carbonate of soda or some other alkali and heating it until red hot. The chemical change is thus produced in the material and the soda enters the surface forming into an opaque white spot. In the case of the rare types of beads in which the pattern was made in black on a white background the effect was produced by first whitening the whole surface with an alkali and then drawing the pattern with a nitrate of copper or iron and refiring the stone.¹⁵³ One carnelian etched bead from Peddabankur seems to have been simply painted without etching but etching is visible in the black painted white agate bead.

(b) Plain beads (Plate 88):

The plain types of carnelian are spherical, square, cylindrical, barrel-shaped, tabloid, biconical, hexagonal and pentagonal, of varying sizes. There is a single yellowish carnelian or sard tabloid bead. Among the chalcedony-quartzes the most abundant are the carnelian; and the next come those of sard. Pliny remarks that no gem was more common than the sard. India has always been the most plentiful source of the finest red sard, which comes chiefly from the Deccan traps.

The second favourite material was rock crystal; the shapes included biconvex hexagonal (brilliant cut), standard truncated and convex quadrangular. These two varieties were also noticed in the iron age context at Prakash¹⁵⁴. The others are hexagonal barrel, tabloid, spherical, biconical, truncated hexagonal and barrel-shaped round, etc.

Regarding the opaque bloodstone and the translucent heliotrope or red-marked green chalcedony, Pliny¹⁵⁵ refers to India as the main source where they are usually found among the Deccan traps. (Pl. 84 top row)

There are 12 beads of bloodstone of dark-green colour, which are mainly of two shapes, viz. spherical and tabloid. There is a single

150. Cited by Dikshit M.G., 1949, *ibid.*, p.28

151. Marshall J., 1936. Reprint, 1973, *Mohenjodaro & Indus Civilization*, pp. 509, 515, 516 and 583

152. Mackey, E.J.H., 1936, "Excavation at Harappa", pp. 401-402

153. Marshall J., 1951, *op.cit.*, p.738

154. Thapar B.K., 1964-65, *op.cit.*, pp.113-115

155. Cited by Warmington E.H., 1928, Reprint, 1974, *op.cit.* p.242

tabloid bead; the remaining are spherical and of varying sizes. The tabloid bead is 2 cm. in diameter with a thickness of 0.3 cm.

Beryl is represented by a single bead of truncated pentagonal in shape. No perforation was made. The jasper beads are dark-brownish in colour. One is spherical and other is tabloid. The spherical bead has an etched circle by the side of the perforation but no pigment was inlaid.

Some beads of lapis lazuli are rectangular with a square cross-section and the rest are either spheroidal or tabloid. It is not clear whether lapis lazuli was produced in India or imported. The chief sources are Persia,¹⁵⁶ Tibet, China and Scythia. The occurrence of large number of beads from several early historical sites may suggest that it was a local product. Beads of lapis lazuli are recorded at Nasik,¹⁵⁷ Maski,¹⁵⁸ Kondapur,¹⁵⁹ Kaundinyapura¹⁶⁰ and Taxila.¹⁶¹

Next comes amethyst which included cylindrical spheroid and hexagonal tabloid. A single bead of long hexagonal barrel comes from Kaundinyapura¹⁶² and a single ovoid bead from Nasik.¹⁶³ The lonely bead from Hastinapur¹⁶⁴ is truncated hexagonal. Another bead from Maski¹⁶⁵ is standard convex lenticular. There are 12 beads from Taxila¹⁶⁶ of hexagonal barrel, flattened hexagonal barrel, and triangular biconical and elliptical barrel.

Among the quartzes are the agates, more particularly known as moss agate, banded agate or simply agate. It was a common and cherished material for beads, because of the variegated colours such as all black or pure white or with beautiful bonds. Even large figures in round used to be carved in agates. Pliny and Philostratos draw special attention to the Indian agates of large size. The Romans must have obtained the best and largest agates from India which are still abundant in the Deccan and the Rajmahal traps of Bengal and Jabalpur. The moss agate and veined-agate come from the Godavari, Krishna and Tungabhadra river beds and valleys.¹⁶⁷

156. *Ibid.*, p.251

157. Sankalia H.D., et al, 1955, *op.cit.* fig. 45, No. 11 and 12, pp. 89-90

158. Thapar B.K., 1957, *op.cit.* pl. XXVII, No. 14, 37 and 38, pp. 105-106

159. Dikshit M. G., 1952, *Beads from Kondapur*, Hyderabad Archaeological Series No. 16, pl. I, No. 12, p. 27

160. Dikshit M.G., 1968, *op.cit.* pp. 86, 92

161. Beck H.C., 1941, "The Beads from Taxila", *Memoirs of Archaeological Survey of India*, No. 65, Pl. VI, No. 19-24, pp. 15-16

162. Dikshit M.G., 1963, *op.cit.* fig. 32, No. 28, p. 94

163. Sankalia H.D., et al, 1955, *op.cit.* fig. 46, No. 6, p. 87

164. Lal B.B., 1954-55, *op.cit.* fig. 29, pl. LV & LVI, p. 28

165. Thapar B.K., 1957, *op.cit.* pl. XXVII, XXVIII, A, Nos. 20, p. 109

166. Beck H.C., 1941, *op.cit.* pl. VI, Nos. 1-12, p. 53

167. Warrington E.H., 1974, *op.cit.*, p. 239

A single tabloid bead of banded agate, which is beautifully banded in white, black and dark brown colours, is the most elegant one in the entire collection. A long-barrelled round bead with brown and pink bands comes next. The collection also included an etched white agate bead black painted with double chevron patterns between marginal bands. The other agate types constituted a spheroid with black patches, an all black-spheroid and a single cylindrical black bead. There is also an all black biconvex round piece without perforation.

Garnet (deep red and translucent) appears rare and is represented by four spheroidal beads. There is one button-shaped garnet seal with an ovoid bezel inscribed with Brahmi characters as KA MA SA, datable to 3rd century B.C. Garnet sometimes known as ruby was used in rings and jewellery.

Glass beads included tabloid, lugged tabloid, short barrel, lugged cylindrical (Pl. 84 - middle row), square cylindrical, spheroid, grooved, cylindrical, etc. The collection also included pulley-shaped spools of deep blue glass with perforation in the middle. These spools have concave sides with diameters ranging from 2.5 to 3 cm. Mention may be made of a blue glass cylindrical bead with double torus mouldings over the body and multiple transverse gadroons along the body. The torus gadrooned glass beads appear to be popular in the Satavahana levels as indicated by their occurrence at Kolhapur¹⁶⁸. All the glass beads are either blue or in light green (cobalt) colour.

Shell, Horn, Limestone, Mother of Pearl :

The collection from Peddabankur also included a good number of shell, horn, limestone, mother of pearl (oyster), beads, etc. The shapes are tabloid, biconical, short cylindrical, etc.

Jasper :

There are only 4 beads of jasper in the entire collection. All of them are dark-brown in colour. The shapes are octagonal, lugged tabloid, tabloid and spherical.

A hoard of pinkish vitrified glass beads was found in the excavations. These beads were cut-out of long tubes and are cylindrical in shape.

Terracotta :

The largest collection of beads are in terracotta of different shapes, viz. pear-shaped, spherical, gadrooned, *rudraksha*,¹⁶⁹ long cylindrical and

168. Sankalia H.D., 1952, *Excavations at Brahmapuri* (Kolhapur), p. 94-96

169. Dikshit M.G., 1968, *op.cit.* Pl. XXXV A.1, p. 104

grooved, star-shaped, wheel-shaped, etc. The gadrooned are tabloid and the entire perimeter of the tablet is vertically grooved. There is only a single specimen of *rudraksha* type with dotted bands in between marginal concentric lines. The third variety is a long cylindrical and horizontally grooved bead. Some of them have collars at both the ends and do not have perforations. A star-shaped bead has seven arms radiating from a common disc which has a big perforation in the middle. A wheel-shaped bead has collared hubs on either side.

The dotted design between bands is of common occurrence in the Satavahana period. Two such beads were found at Kaundinyapura¹⁷⁰; one is spheroidal and the other is cylindrical but the bead from Peddabankur is exactly in the shape of *rudraksha*. The cylindrical bead with multiple grooves has its analogy at Brahmapuri.¹⁷¹

The arecanut or pear-shaped bead has universal distribution and found at a large number of early historical sites, such as Nagarjunakonda, Yeleswaram, Kondapur, Taxila, Brahmagiri, Maski, Paithan, Nasik, Jorwe, etc.

170. Dikshit M.G., 1978, *op.cit.* p. 104

171. Sankalia H.D. and Dikshit M.G., 1952, *op.cit.* pl. XXIV A.9, p.96

A R T

Like architecture, the sculpture also reached a very high degree of consummation. The Buddhist stupa at Dhulikatta was decorated with forty seven carved *ayaka* slabs, found mostly intact in the course of excavation. The carved slabs of the northern *ayaka* platform consisted of a five-hooded Muchilinda Naga, protecting the feet of Lord Buddha. On both the flanking slabs are two ladies standing; the lady on the left holds a lotus bouquet in her raised left hand while her right one is dangling. She wears a cubical ear-ornament stamped with a beautiful lotus medallion, the profuse hair made into a side knot, a broad necklace of several strings, a broad waist-belt with a middle band of lugged tabloid beads (similar beads of silver are noticed at Peddabankur). She also wears series of bangles and a beaded wristlet with a squarish jewel in the middle and massive anklets.

The lady on the right holds a flower in her upraised right hand and her left hand in akimbo over the left hip. Her flowing hair is made into a left side knot. She too wears cubical ear-ornaments stamped with rosettes, a broad necklace consisting of several *haras*, ring-like armlets, series of bangles enclosed by ringed bracelets, a beaded *mekhala* (similar to the above), the diaphanous undergarment secured by a knot below the navel and thick-ringed anklets below a series of spiralled wire ornaments. She stands in a graceful feminine gait with her upper body slightly bending forward, her left leg firmly placed on the ground while her right one loosely resting on the toes (Plate 6).

On the right side pilaster of the Naga slab the head of an Yaksha was depicted, enclosed by a lotus medallion. The hair of the Yaksha is made into a top-knot (Plate 89). The Yaksha inside a lotus medallion may probably represent the Sun god.

There is another figure of an Yaksha represented as lifting, with his two upraised hands, a slab on which an *ardhapadma* is depicted. His ears, hands and legs are similar to the ears and legs of an elephant. He squats on the ground and the loin cloth covering his genitals, shown in incised vertical lines, flows downwards. In this aspect the Yaksha may represent *Airavata* who is considered as Indra or Sakra's *Vahana*, elephant and considered as the proto-type of the elephant species and the supporter of the east-quarter. It may be the personification of Indra's elephant *Airavata*. The slab on which the Yaksha is depicted aptly faces east (Plate 90).

In the rock-cut caves of Pitalkora¹⁷² two similar Yakshas are represented with their hands carrying the weight of the balustrade. Both are dwarfish and pot-bellied and have foreheads wrinkled, apparently due to top heavy weight, bulging eyes, flat noses, etc. These Yakshas appear earlier than their massive counterparts in front of Cave-3 of Nasik.¹⁷³

Another pilaster at Dhulikatta has a relief carving of the 'Miracle of Sravasti' in which Buddha is shown as a 'pillar of fire', basing over a heap-like mass of water and tongues of flame, shown as incised lines, curving inwards like the two side-prongs of a 'Nandipada'. This is possibly an early representation of the *Nandipada*, datable to 2nd century B.C. (Plate 91).

Besides the solemn religious scenes, the panels also display some with sportive themes, wherein a man, his genitals prominently shown, holds the tail of a fleeting tiger. Behind is the continuation of the scene in which a man is urging an elephant with his right hand while his left hand stretched out. It looks as though he is chasing an elephant.

Phanigiri :

The artistic representation at Phanigiri¹⁷⁴ is quantitatively less yet qualitatively the highest in tradition. In course of scraping operation at Phanigiri, a beautiful limestone sculpture of Yaksha came to light. He is shown with bulbous eyes and an aquiline nose. In his elongated ear lobes there are some ring-type ornaments. He wears a turban around the head. On a pilaster the figure of a dwarfish Yaksha, probably Kubera, with a protuberant belly, was represented in a shallow relief. He wears *chakrakundalas*, a round torque, broad bangles and a turban with a middle knot, etc. He holds a long staff in his left hand. In another panel there is a representation of a fleeting bull chased by an elephant. The elephant thwarted by a man standing in the middle of the two animals by showing his stretched hand towards the elephant.

Terracotta objects:

The excavation at Peddabankur and Dhulikatta have yielded many terracotta figurines of human beings and animals. Some of them are hand-made and others are cast from double moulds. The crude figurines of bovine animals, such as bull, etc., are characteristic of the proto-historic period, but stylistically they cannot be attributed to any particular phase. Some of the archaic terracottas may be compared with those found at Bhita, Kausambi, Pataliputra, Ahichchatra, Mathura, Yeleswaram,

172. Deshpande M.N., 1959, "The Rock-cut Caves of Pithalkhora in the Deccan," *AI*, Vol. 15, pl. XLIX. A. p.73

173. Cited by Deshpande M.N., 1959, *op.cit.*, p.73

174. Ahmed K.M., 1950, *op.cit.*

Nagarjunakonda, etc. As already noted two methods of modelling the terracottas were noticed, one by hand and the other by employing a double mould. The hand-made figures are made out of a single lump of clay pressed by hand into three parts. The top portion making the head is made into a round mass without retouching. Sometimes the nose was pinched and the eyes executed in applique. The hands, legs, and breast were drawn out like pointed spikes.

The moulds were possibly made of both terracotta and wood. But the Indian climatic conditions would not allow any wood specimen to survive. Yeleswaram excavations recorded a large number of terracotta moulds from both Satavahana and Ikshvaku levels. They included a double mould of ram, mother goddess, a Scythian soldier, besides moulds for making designed miniature pots and moulds for stamping on bigger pots.

There are two methods¹⁷⁵ of manufacture of clay figurines; one by double mould, i.e., by pressing the two moulds on a solid lump of clay and paring off the surplus clay with a sharp instrument. The other method is to press the wet clay into two different moulds of the front and back portion separately so as to form hollow shells. After detaching the casts from the moulds the two halves were luted together by pinching or applying clay with water.

The double mould of ram from Yeleswaram is hollow at the base. The two moulds of the rear and front portions must have been tied with a thread outside and wet clay was pressed through the hollow which is wide enough to allow the thumb inside to press the clay over the negative. The moulds of human figure also have holes at the base but are narrow for the insertion of clay with fingers. The terracotta moulds of Yeleswaram were made of finely levigated clay and well fired to red colour. The backs of the moulds were smoothened with hand by application of water.

Finishing:

After detaching the casts and luting them together the figures were retouched in order to deepen the grooves and incise designs. Occasionally the figures were either dipped in a thin slip or alternately were applied with the slip by a brush made of some fibre.

Baking :

The terracottas were baked¹⁷⁶ in a closed or open kiln but heat was never applied directly. The objects to be baked were kept in an earthen vessel which was covered from outside with charcoal and husk.

175. Gupta P.L., 1972, *op.cit.*, pp.11-12

176. *Ibid.*, p.12

The outlets provided at the bases of the figures would allow the gas to escape.

Archaic Terracottas (Plate 92) :

Archaic terracottas were found at Peddabankur in large numbers in the Mauryan and Satavahana levels. They comprise human and animal figurines. The figures are hand-made by modelling the clay to the desired shape, but the similarity of the shape and sex (female) of many figures may indicate that they represent fertility cult. The heads of many figures are broken. The hands are pinched like pointed masses, the breasts protruding and pointed, the attenuated waist line, with or without a navel, broadens towards the hip. No genitals are shown. The face is just a featureless mass occasionally with a halo-like dressing. The back is flat. This kind of figures have a wide distribution as noticed at Yeleswaram, Nagarjunakonda, Nelakondapalli, Dhulikatta and Peddabankur. The figures from Dhulikatta, Peddabankur and Nelakondapalli appear to have been cast out of the same mould. Apparently these figures were manufactured at one place and exported to other places.

THE FIGURES :

Male figures :

This type consists of crudely made figures of a male deity with hands and legs shown as tapering masses, pinched nose, eye sockets filled in with applique eye balls. The head tapers to a point and has a prominent band at the top. The waist-band is shown with incisions. The second figure is also a male deity, with similar hands and legs and with feet curved forward. The third figure has flattened ears and pinched nose, pointed hands and legs.

Female figures :

Among the female figures one has its head and hands slightly curved forward, and breasts indicated as a single protuberant mass. The other figure, also a mother goddess with head shown as a thin trefoil mass, has pointed hands and prominent breasts; but the body below the breasts is broken. This figure comes from pre-Mauryan level. There is another figure of Mother Goddess with head shown as a prominent mass like a round halo at the back, and breasts pointed. The hands and body below the waist is broken. The head of the Mother Goddess, with a halo or shown itself as an inverted crescent, is exactly similar to the Hittite Goddess¹⁷⁷ reported from *Alaca Huyuk* of the early Bronze Age which was dated to circa 3000 B.C.

177. *Larousse Encyclopaedia of Ancient and Medieval History*, 1964, Hamlyn, Paris, p.64

Archaic figures of Birds and Animals :

The collection also included a few birds and animals, which were crudely modelled, defying proper identification. The animal figurines are mostly humped bulls. There are a few bovine animals with hump. There is a figurine of cock, 6.5 cm. long, made of well-levigated clay and baked to a buff colour. It has a prominent crest, and pointed ears; the bill is broken. There is another bird appearing like a sparrow which is slightly broken at the back. The third is a nondescript bird with an open bill. The body below the neck is broken. The object was perhaps used as a knob of lid.

There is only one specimen identified as an elephant among the archaic types, with its head and legs damaged. A figure of a she-boar, with head and legs broken, has its sex indicated. A figure of a cow has a slightly curvaceous snout. The udder and the tail are shown. Another bovine animal, similar to the above specimen, is also shown with teats and a small tail. A bull figure is depicted with horns and hump. The snout is shown like a pointed mass and the eyes pinched. The figure of a ram has a pointed snout and horns which are shown like discs. A small figure of a dog has a pinched snout and prominent ears. The head of an elephant, with its trunk lifted and torso broken, is found in the pre-Satavahana levels.

Terracotta and Kaolin figures from double moulds :

The figures, cast-out of double moulds, include three types of Mother Goddesses. The first type is a figurine with outstretched hands and arms lifted. She wears a double *makara*-type head-dress secured with a band in the middle. She is decorated with a necklace, waist-band (*mekhala*) of a wavy design and beaded *kankanas*. The flowing hair is made into a back-knot. This type is the most common one in the late Satavahana and Ikshvaku levels at Yeleswaram,¹⁷⁸ Nagarjunakonda¹⁷⁹ and elsewhere. We find a similar figure found in the rock brusings of proto-historic period noticed at Mudumala in Maktal taluk of Mahboobnagar district, which appears to be the arch-type (Plate 93).

It may be recalled here of a Phoenician Mother Goddess Baal or Astarte, dated to 1300 B.C., carved on an ivory plaque found at Beida¹⁸⁰ in Syria, now exhibited in Louvre Museum at Paris. She is shown with her two arms upraised and carrying in her hands sheaves of fodder baiting two goats on either side. The Phoenicians brought elephant tusks from India or from Punt via the Red Sea for the carvings in ivory. The Goddess from Peddabankur, with her hands upraised but without any

178. Khan A.W., 1963, *op.cit.*

179. Krishna Murthy., 1977, *op.cit.* p.61

180. Harden D., 1962, "The Phoenicians", *Thames and Hudson*, London, pt.60, p.310

fodder bait, may represent the Goddess of Plenty. Some of the figures with out-stretched legs have genitals indicated. In that case she may represent the Goddess of Fertility.

The second type of Mother Goddess from Peddabankur (Plate 94) is made of kaolin, which has universal distribution¹⁸¹ among the early historical sites. The head, the right leg and back portion of the figure are missing. Her left hand simply rests on the thigh. A parrot perching on the right arm is nudging the breast of the Goddess with its bill. The goddess holds a bunch of fruits in her right hand. She is profusely decorated with a broad necklace ending in a locket above the prominent navel, the bangles, a beaded waist-band of double rows and *keyuras* above the feet. Nudity is also indicated. In another figure of the same Goddess, she wears a beaded *yajnopavita* and a beaded necklace with leaf pendants. The left breast is partially covered with the leaf (pipal) pendant. Here the parrot is shown with its head bent below the breast of the Goddess. Nudity is indicated.

Parrots are domesticated in the early periods, usually to convey messages between lovers, as the bird was stated to be the vehicle of the God of Love, Manmatha. In Meghaduta of Kalidasa¹⁸² the Yaksha suggests that his beloved would be engaged in conversation with her pet parrot in the cage, interrogating the bird whether it remembers its master who loved it so well.

In one of the ivory carvings from Begram, dated to 2nd-3rd century A.D. we find a beautiful lady speaking to a pet parrot. Similarly one of the Yakshis from Bhutesar near Mathura speaks to her pet parrot on her shoulders. The parrot is shown nibbling her locks. The Yakshi carries a cage in her right hand. In one of the imprecatory verses of Ramayana the Goddess Vagdevi or Saraswathi is described as holding a rosary and a book, a lotus and a white parrot.

There is a beautiful ivory sealing from the Dhulikatta excavation, inscribed with Brahmi characters as "AJANI SIRIYA GAME KUMARIYA". It is stated in the Arthasastra that in the centre of the parapets of a fort, an abode of the Goddess Kumari (Kumaripuram) should be constructed. Dhulikatta, being a fortified town, a temple or abode dedicated to the Goddess Kumari might have been situated therein. Then who would be this Goddess Kumari? Kumari literally means one who is unmarried. Kumari is the Goddess who bestows children. Parrot being one of the attributes of the Goddess Kumari, the above mentioned nude Goddess with a parrot may be the Goddess Kumari.

181. Nagaraja Rao M.S., Director of Archaeology, Karnataka State, kindly presented me a photograph of a similar Mother Goddess, recovered at Sannati Excavations in Karnataka.

182. *Meghasandesa*, Canto 2, Stanza 25; edited by Viswanath S., Madras

The third type of Mother Goddess is found at Dhulikatta (Plate 95). It is made of finely levigated clay. The back portion and body below the breasts are missing. The Goddess holds her prominent breasts with her hands from below. She wears a beaded *yajnopavita* passing over her left shoulder through the middle of the breasts, a torque (*kanthi* or *grivevaka*) around the neck, crescentic ear-ornament (*chandra karnika*), a beaded fillet over the forehead with a crest jewel and beautifully combed hairs towards right (probably made into a side-knot). The ornaments such as the *kankanas*, *keyuras* and the *lalatika* (crest jewel) are in a pleasing harmony with the smiling expression of the benign Goddess, depicted with parted lips, narrow eyes and bulbous cheeks.

We find similar Mother Goddesses¹⁸³ from Babylonian, Elamite and Neo-Babylonian civilizations, dated from 2nd millennium B.C., where the Goddesses hold their breasts with hands. It may possibly represent Goddess as giving milk or life juice. These figures have been ascribed to the Bronze Age and dated to circa 2500 to 1200 B.C.¹⁸⁴ The Babylonian Mother Goddess, Nana or Ishtar¹⁸⁵, is not only the source of Fertility but also the Gracious Mother of Mankind and the Goddess of Love. In that aspect she is the Aphrodite of Babylonia. The Goddess Ishtar was sometimes identified with Venus, 'the daughter of Sin'.

On one of the ivory mirror handles from a tomb on the hill of Juno, Carthage, a Phoenician Goddess¹⁸⁶, is represented as holding her two breasts from below. The Goddess is shown standing and has a long decorated girdled robe which reaches to the feet.

This type is very similar to the nude female figure with hands doubled up to touch the breasts, as cited by Ananda Coomaraswamy, which is said to have come from Peshawar district. The figure of Mother Goddess from Mathura¹⁸⁷ of the Kushana period, dated to 2nd century A.D., now displayed in the National Museum, New Delhi, is identified as Sri Lakshmi. The Goddess holds her right breast with her left hand, while her right hand points the sex.

Among the other Peddabankur figures there is a kaolin figure of a boy with a turban-like head-dress. He wears heavy *kundalas* resting over the shoulders and his right hand simply kept over the thigh. The figure is devoid of other ornamentation. As such, it may be the representation of a commoner boy of the early historical period.

183. *Bulletin of the American Institute of Persian Art*, March, 1932 cited by O.C. Gangoly, *Indian Terracotta Art*, 1959, p. 5 unnumbered plate facing page 8

184. O.C. Gangoly, *ibid.*, p. 57

185. Morris Jastrow Jr., 1915, *The Civilization of Babylonia and Assyria*, p. 233

186. Harion D., 1962, *op.cit.* fig. 73, p. 206

187. Mathur N.L., 1976 (2nd edition), *Sculpture in India: Its History and Art*, pl. 11, p. 98

There is also one dome-shaped terracotta figure (Plate 96), which is (6 cm. high) hollow inside. It was represented at the top of the dome with the head of an Yaksha. He wears a broad beaded fillet over the forehead, hairs shown in ringlets, bulbous eyes and parted thick lips. The elongated ear lobes carry *chakrakundalas*. The head of the Yaksha is enclosed in tongues of flame shown as a circle of loops. The body below the loop-circle is incised with a lotus design. The Yaksha heads, with the turban enclosed by lotus medallions, are found in Bharhut sculptures.¹⁸⁸ On one of the *avaka* slabs of the Buddhist stupa at Dhulikatta, dated to early second century B.C., there is an Yaksha figure inside a lotus medallion. The face of the Yaksha, with rayed circle enclosed in a lotus medallion, may be a representation of the Sun God. In Rigveda¹⁸⁹ Agni is sometimes spoken of as the Lord of the Yakshas (*Yakshadhyaksha*).

There are a few animal figurines such as a squatting elephant with an ornamental strap, a caparisoned horse and a ram among the figures cast out of double moulds.

From Dhulikatta there is a hand-made red-slipped and polished figure of probably a male (48.5 cm. long) wearing a hat-like head-gear (Plate 97). The head-gear has a prominent brim with a jewel attached to the right. The eyes and ears (with discular ear-ornaments) are made in applique. The figure, seemingly, is the mouth of a water jar with parted lips to simulate laugh. The mouth is wide open to let out water. There is a hole at the top of the hat probably to insert an ornamental flower. This is a unique figure without any parallel so far in the Indian terracottas. Similar figure but of a lady with a different head-gear carved on ivory was reported from Nimrud¹⁹⁰ known as "the lady of the well", dated to 8th century B.C. The specimen from Dhulikatta was possibly modelled as the head of a spout of a jar, to draw out water through the mouth of the figure.

188. Agrawala V.S., 1965, *Indian Art*, pl.74 A, p.146

189. *Rigveda Samhita*, Vol. VII, p.244, Translated by Wilson H.H., 1888. Cosmo Reprint, 1977, New Delhi.

190. Larousse, 1964, *Encyclopaedia of Prehistoric and Ancient Art*, Hamlyn, Paris, p.149

TERRACOTTA SEALS AND SEALINGS

(A) The excavations at Peddabankur and Dhulikatta yielded three inscribed seals in Brahmi, two button seals, and some ornamental seals. One terracotta seal is inscribed in Brahmi as 'MAHĀ TALAVARASA VAJASĀMIKASA SEVA SABHA'. A beautiful horse, without trappings, was stamped in the middle of the inscription. At the back of the seal is an impression of threads. The Brahmi characters are datable to 1st century A.D. (Plate 98, Seal No. 3).

During the Mauryan, Satavahana and Ikshvaku periods the title *Mahatalavara* was borne by high dignitaries of the state. Some of the *Mahatalavaras* bear metronymies similar to those of the kings. The *Mahatalavaras*¹⁹¹ were feudatories under the Mauryas and later Satavahanas. The feudatory *Talavara* may be an officer with judicial functions like the *Kothwal* of the Moghul period. *Vaja* or *Vaji* may literally mean war-house; and *sami* (*swami*) is the head. *Seva Sabha* may mean a guild or union in the service of the General in charge of the cavalry of the whole kingdom or a part of it. These *sabhas* or guilds were possibly entrusted with the maintenance of a fixed number of horses to be supplied during times of war. The practice of maintaining the cavalry and supplying the king continued until the Vijayanagara period.

(B) There is a seal incised in a circle on a black and red ware rounded potsherd in Brahmi characters reading as "VIJAYA PURAHARAKASA RATHASA". The seal was found in a level datable to 1st century B.C. In the middle of the inscription the figure of a plough with a yoke was incised. The yoke has two pegs on each side for fastening the leather thongs round the neck of the draught animals (Plate 98, Seal No. 2).

During Satavahana period the empire was divided into *aharas* such as *Soparahara*¹⁹², *Govardhanahara*¹⁹³, *Mamalahara*¹⁹⁴, *Satavahanahara*,¹⁹⁵ etc.

191. Gopalachari, K., 1941, Reprint, 1976, *Early History of Andhra Country*, p. 138

192. Kanheri, No. 5, *Epigraphia Indica*, Vol. IV

193. Nasik, No. 3, E.1, Vol. VIII

194. Karla, No. 19, *Epigraphia Indica*, Vol. VII

195. Jangli Giundu Inscription of Pulamavi the III, *Epigraphia Indica*, Vol. XIV, p. 155

The *aharas* were governed by *amatyas*¹⁹⁶ (*amacas*), who were far inferior in status to *Maharathis*. The *Maharathis* appear to be the hereditary governors of the provinces. *Satavahanahara*, *Pallava rastra* and *Vaingeyaka vishaya*¹⁹⁷ would probably denote a territorial division not bigger than a modern district. In Asokan inscriptions¹⁹⁸ the *Rastrikas* have been specially mentioned in the group of *Bhojas* and *Pettanikas*. In *Anguttaranikaya*¹⁹⁹, *Rashtrikas* were hinted as a board of elected leaders. If *ratasa* means *Rastrika* the sealing may belong to a chieftain of *Vijayapurahara*. But a chieftain may not be so destitute as to inscribe his seal on a rounded potsherd. Moreover the plough in the middle is a pointer to the nature of his profession. He may not be a *rastrika* as such but a common cultivator.

In *Hastinapur*²⁰⁰ excavation, a terracotta seal was found bearing the inscription in Brahmi as *Thi(?) Kaputrasa Jayasamasa Roddisa*. The word *Roddisa* may be a parallel to the modern *Reddis* of the Deccan whose profession was agriculture.

Now the problem is to find out the location of *Vijayapuri*. So far, we have one *Vijayapuri* at *Nagarjunakonda* in the *Guntur* district. It was the capital of *Ikshvakus* during 3rd century A.D. If *ahara* comprises a territory equivalent to a modern district, *Peddabankur*, which is more than 300 km. away from *Nagarjunakonda*, could not have been included in the *Vijayapuri* district. Moreover, the seal which is a negative would always be kept under the custody of the owner who stayed at *Vijayapuri*. As such, there was one more *Vijayapuri* round about *Peddabankur* or *Peddabankur* itself was known as *Vijayapuri*.

The seal, as already noted, has a yoked plough in the middle which indicates the agricultural profession of the owner or some sectarian affinity of the owner or the group which used the plough as their *lanchana*.

(C) There is a button-shaped seal of garnet (deep red translucent) and inscribed as *Ka ma sa* with a loop design at one end over the ovoid bezel of the seal. The design is a square diagram with sides elongated to form into loops. The Brahmi characters are similar to those of the Asokan period. As such, it may represent royalty or simply an auspicious symbol (Plate 99).

196. Gopalachari, K., 1941, Reprint, 1976, *op.cit.* p.91

197. *Ibid.*, p.186

198. Rock Edict of Asoka, No.5, Edict No. XIII

199. *Anguttara Nikaya III* 76,78 and 300, Translated by Rowland E. Jaya Tilake Goonaratne (Galle), Ceylon, 1913

200. Lal, B.B. 1954-55, *op.cit.* plate LVIII, p.101

(D) Dhulikatta excavation has yielded an exquisitely carved ivory seal in the shape of a cup on pedestal. It is polished on lathe and has a Brahmi inscription, palaeographically datable to 2nd Century A.D., which reads as "AJANI SIRIYA GAME KUMARIYA". In the middle of the inscription some numerals are incised which may indicate number seven. This seal was found in the course of debris removal from a Satavahana well, situated in the vicinity of a complex of structures of the above period. As already mentioned this seal might belong to a temple of Goddess Kumari in the village (grama) of Ajani Sri. As such the ancient name of the present Dhulikatta might be Ajani Siriya Grama (Plate 100).

POTTERS AND POTTERIES

Pottery formed one of the most essential necessities of the daily life of the common people. Metals always being scarce and costly, pottery occupied a very important place in the life of the people. The potter or *ghatakara*, who always worked on the wheel, was also known as *chakrika* or *chakrakāra*.

The entire range of pottery, recovered from the early historical site, is mostly wheel-made; the fabric ranges from fine to coarse. Most of the pottery, whether it is a storage jar or a lota of daily use, was turned on wheel. Broadly the pottery may be classified into the utilitarian and ritualistic, the former being more numerous. The types included jars, water vessels, carinated bowls, lid-cum-bowls, lids, lotas, small bowls or chattis, measures, lamps, lamp-stands, dishes, etc. The pottery from the early phase was marked by profuse occurrence of tan ware besides finely polished red and black and red polished wares. In the later levels, the tan ware gradually diminished and was substituted by the red polished ware. The black and red ware also gradually lost its lustre and became drab during the Satavahana period. The coarse red ware becomes profuse in the later phases. Besides these main wares there is occasional occurrence of all-black ware and other aberrant wares.

A. Storage Jars (Fig 15) :

The storage jars are available among two kinds of wares i.e. the tan ware and the red polished ware. One tan ware storage jar has a rolled and out-curved rim. This pottery is well-burnt. The tan slip is burnished to high polish and still retains it. In the other jar, which is smaller than the above, the slip is lighter in colour and much abraded over the rim. This has an out-curved and grooved rim with a flange outside. The slip inside is a little darker than outside, but less burnished.

Among the red ware jars some are decorated with designs and some are plain. The first type has a thickened and a faceted rim. It has a thin red-slip and is burnished only on the exterior. The inner surface is unburnished. The second variety has a slightly out-turned rim with a squarish cross-section. It was uniformly well burnt and has a thin pale red wash and burnished outside. No such slip or burnishing is visible on the interior. The third type has an out-curved and flanged rim. It was decorated with a wavy and finger-tipped design at the flange. As the pot is much abraded neither slip nor burnishing is visible outside.

but the tan slip inside is visible. There is a lot of lime encrustation inside the pot suggesting that either it was filled-up with lime or was given a lime coating as a preservative of food grains. The second variety has an out-turned and elongated flanged rim and grooved internally. The slip outside is much abraded and the degsaissants such as sand, etc. are exposed. The next type is also a red-slipped jar with an out-turned and grooved rim. It is decorated with a finger-tip design at the flange. The slip on the exterior is completely lost. The next variety has an out-curved and grooved rim. The red slip is visible outside, but the inner surface was left unslipped. The jar is decorated with a band of pinched triangles below concentric grooves near the neck. The other variety is a nail-headed obliquely faceted rim. It is slipped both inside and outside [Figures 16 (a)].

The storage jars may have been used for various purposes such as storing water or grain, etc.. A squattish jar from Yeleswaram, a unique specimen of its kind (56 cm. in diameter at the mouth and 65 cm. high inside), is decorated with an incised fish-pattern at the top of the flat rim and gadrooned knobs at the edge. Over the shoulder, tree symbols were stamped in ovoid cusps. Below is another band of circular cusps bearing the figures of bull, horse, lion and Gajalakshmi. At the middle is an applique band of oblique strokes. Probably the jar must have been used for a special purpose. A storage jar from Kondapur was inscribed with Brahmi letters at each of the cardinal points outside.

B. Jars [Fig. 16 (b)] :

The first type has a beaded-rim and straight sides which are almost like those in a water trough. It is decorated with an applique band of finger-print design. No slip is visible outside. The second type is similar to the above but smaller in size. The rim is rolled and decorated with a band of finger impressions beneath it. The third variety has an out-curved and thickened rim which is internally grooved. The jar is decorated with a band of oblique grooves at the lower end of the rim outside and a herring bone pattern at the neck. There is also a single all black ware jar with an externally-curved and flanged rim. The slipped body is burnished to smooth surface outside.

The bigger jars are to a height of 75 to 100 cm. with varying diameters at the mouth. These were probably used for the storage of grains, a practice which continued till the present day.

C. Water Vessels (Fig. 17) :

The water vessels or *kumbhas* are usually globular in shape and convenient for carrying water from rivers, tanks and wells. The rims are sometimes beaded, flanged and grooved or simply flanged or externally thickened. As they were meant for daily use much decoration is not

noticed. They are sometimes tan or red-slipped; but frequently the slip is abraded due to constant use and the consequent wetting.

D. *Carinated Bowls* [Fig. 18, Nos. (1), (2) and (4)] :

There is considerably a big collection of carinated bowls from all the levels, which appear to have universal distribution in the early historical period. Most of them, whether big or small, have flanged rims with an occasional decoration of concentric bands above the carination. In some cases the carination is very prominent and in others the pot is rounded. The base is sagging or rounded. The slip is light. Soot stains appear at the base of some pots. A few all-black ware bowls are also included.

The other variant is a deep dish with an externally thickened rim and a round body. Carinated bowls were recorded from Brahmagiri²⁰¹, Arikamedu²⁰², Nasik²⁰³ and Sisupalgarh.²⁰⁴

E. *Lid-cum-bowls* :

They are mostly of matt red ware. The convex-topped lid is usually ledged underside and the body below the ledge tapers to a lipped mouth. The mouth is lipped to facilitate holding. Sometimes it is decorated with double bands below the rim. In most of the cases no slip is visible, but there is a lone specimen of tan slipped lid. Similar lids also came from Nasik²⁰⁵, Brahmagiri²⁰⁶ and Sisupalgarh.²⁰⁷ In the ordinary lids the rim is sometimes thickened. There are also hat-shaped lids, with rims thickened underside. There are also three black and red ware lids: one has an out-curved rim and rounded base, the other is like a shallow platter with an internally grooved and curved rim. This is a tan black ware lid, black inside and tan outside. The third lid appears like a shallow dish of black and red ware with a sharply curved rim to act as a flange.

Mention may be made of the knobbed lids. The lower part is an inverted bowl joined to the knob with a solid stem. The knob consists of a solid barrel, pointed at both ends and fixed to the stem perpendicularly. All black ware lids, with similar knobs, are found in the Megalithic burials at Pochampad. The second variety is an all black ware lid with a smaller knob. The exterior is not burnished and looks drab.

201. Wheeler, R.E.M., 1947-48, *op.cit.* fig.24, Type.92-94, p.235

202. Wheeler, R.E.M., et al, 1946, "Arikamedu, An Indo-Roman Trading Station on the East Coast of India", *AI*, Vol.2, fig.32, No.93 D, p.83

203. Sankalia, H.D., et al, 1955, *op.cit.* fig.27, type, 40, p.64

204. Lal, B.B., 1949, *op.cit.* fig.7, type 33, p.82

205. Sankalia, H.D., et al, 1955, *op.cit.* fig.33, No.73-80, p.74

206. Wheeler, R.E.M., 1947-48, *op.cit.* fig.28, Type.162-167, p.243

207. Lal, B.B., 1949, *op.cit.*, fig 7, No.27 & 29, p.82

F. *Deep Bowls* : [Fig. 19, Nos. (1) to (4)]

There is a very prolific collection of deep bowls, majority of which are having slightly incurved featureless rims. The entire collection is of coarse black-and-red ware. Some bowls have out-curved rims and decorated with grooves at the neck. There are also many black-and-red ware miniature bowls. Deep bowls, with featureless, rims are very common in early historical sites as at Nagarjunakonda²⁰⁸, Amaravati²⁰⁹, Kondapur²¹⁰, Salihundam²¹¹ and Yeleswaram.²¹²

G. *Dishes* : [Fig. 19, Nos. (9) and (10)]

The next important type is the dish which occurs in large numbers. Most of the dishes are of black and red ware and those found in the earlier levels are highly polished. Also from the early levels there are tan and black ware dishes with incurved rims. There is no doubt that these were used as table ware, as the shape is not quite dissimilar to the modern metallic plates.

H. *Globular Vessels* : [Fig. 19, No. (12)]

These are squattish vessels with globular or ellipsoidal body. One from Peddabankur is an all black ware vessel, with an out-turned and internally thickened rim and an ellipsoidal body, decorated with concentric incised bands below the rim. The other, also from an early level, is with a very fine tan slip and found polished only on the exterior. It is slightly carinated at the shoulder and decorated with a single groove at the carination.

Analogy in vessels with globular bodies comes from Salihundam²¹³ and Brahmagiri²¹⁴.

I. *Straight or Concave-sided Bowls* : [Fig. 19, Nos. (6) to (8)]

These vessels have straight or concave sides and out-turned or flaring and flanged rims. As they were intended for daily use these do not have any slip. Even the slipped vessels are much abraded. One bowl with a height of 13 cm. has concave sides and a splayed-out rim. It has a light red wash and grooved decoration in the middle and at the carinated base. The second vessel is also *straight-sided* with *flanged rimmed*

208. Krishna Murthy, K., 1954-60, *op.cit.* fig.10, No.1, p.139-140

209. Venkataramayya, M., 1962-63, *IAR*, pl.II, pp.1-2

210. "Compare the Specimen from Kondapur Museum", p.213

211. Subrahmanyam, R., 1964, *Salihundam - A Buddhist Site in Andhra Pradesh*, fig. 20, No. 62, 63 and 72

212. Khan, A.W., 1963, *op.cit.* p.32

213. Subrahmanyam, R., 1964, *op.cit.* fig.27, ty.64, p.74

214. Wheeler, R.E.M., 1947-48, *op.cit.* fig. 28, ty.169, p.243

rim; and probably an applique handle which is broken. It is grooved below the rim and at the bottom. A light red slip is visible. The third one has an out-turned flanged rim, carinated at the convex base. The vertical-sided vessels, sometimes with a concave profile and splayed out featureless rims, are found in Malwa ware at Navdatoli.²¹⁵

J. Spherical Bowl [Fig 19-No. (13)] :

There is a single spherical bowl with convex sides and featureless incurved rim. The base is rounded. The fabric is very thin and has a light pinkish wash and appears to have been burnished with a spatula, which resulted in a blotchy surface. The clay is very finely levigated. We have an analogous type in the Malwa ware from Navdatoli²¹⁶, where the bowl occurred in a reddish cream-slipped ware and painted with irregular circles. The Peddabankur bowl has no painting but must have been used for a similar purpose. Such bowls were commonly used for begging. In the Vinaya Texts detailed rules are given regarding their making and use. In a panel, illustrated with the episodes in the career of Buddha at Nagarjunakonda²¹⁷, four kings are shown each holding a spherical or deep bowl. In the same panel a similar bowl is also seen in the hands of Buddha.

K. Lotas [Fig 20 No. (11)] :

Lotas are miniature vessels with a globular body and a rounded base. Some have narrow-necks and out-turned rims. As they were intended for carrying liquids like water, milk, etc. the mouths are usually narrow. There are five vessels from Peddabankur; one has an elongated neck and an out-turned splayed-out rim with a flange. It is decorated with an embossed band at the neck and incised circle at the shoulder. The body tapers to a flat base. The tan slipped surface is crackled. The second one is a black and red ware pot and polished outside. It has an ellipsoidal body with a convex base. The rim is slightly out-turned for grip. The third is a matt-red lota and has an ellipsoidal body. The splayed-out rim is grooved inside. Similar lotas are found at Taxila²¹⁸ and Salihundam²¹⁹. In the sculptures at Nagarjunakonda a lota with a spherical body is carried by a male in his left hand in a panel depicting Mahapaduma Jataka²²⁰. The fourth one with an out-turned rim has a corrugated body and a convex base. No slip is visible. The next type has an out-turned rim with a single corrugation in the middle and a convex base. The

215. Sankalia, H.D., et al, 1971, *op.cit.* fig.39, pl.XVI B, p.114

216. *Ibid.* fig.38, Type 2B-2C, Pl.16, p.114

217. Krishna Murthy, K., 1977, *op.cit.* p.139

218. Marshall, J., 1961, *op.cit.* pl.122, No.31, p.410

219. Subrahmanyam, R., 1964, *op.cit.* fig.29, No.79, p.75

220. Krishna Murthy, K., 1977, *op.cit.* fig.10, No.10, p.146

inner surface has a black slip and the outer has a light tan slip. Similar corrugated pots, otherwise described as double pots, were found at Jorwe.²²¹ In profile, it looks like a pot over another pot. Similar corrugated pot but smaller than the above was found in an early historical brick well at Dhulikatta.

L. *Pyriform Wine Vessels* [Fig 18 No. (10)] :

There are three unique all black ware pyriform wine vessels from Dhulikatta. The first vessel has a very narrow neck and an out-turned flanged rim, grooved inside. The mouth is 2.4 cm. in diameter and the height of the vessel is 18 cm. From the neck downwards, the body takes a wide bulge and then tapers down from the shoulder to a flat base. The second vessel, 18 cm. high, also has a narrow mouth, 2 cm. in diameter, with a similar body as above. The third, 13 cm. high vessel, is smaller than the above two and has a little more wider mouth (2.7 cm.) with a deep groove inside the flanged rim. It has also a flat base and measured 13 cm. high.

Wine jars (*surabhanda*) from Taxila²²² are tall narrow-necked vessels of buff or buff-red clay with a porous texture to help keep the liquid cool. Sculptural representation of wine jars are noticed at Sanchi²²³ and Nagarjunakonda²²⁴. The wine jars from Dhulikatta almost appear like the Roman or Greek amphorae²²⁵ but without handles. The function of the amphorae was to contain wine or oil but it is likely that the shape is indigenous, not imported as we have the pyriform urns from Porkalam²²⁶ of a very similar shape.

M. *Lamps* :

There are a good number of lamps. They are shallow dishes with a lip for the wick. The sizes vary from 11.5 cm. to 6.5 cm. All are in dull red ware. The fabric of the smaller lamps is coarser than the bigger ones.

N. *Ring Stands* [Fig 20, Nos. (1) and (2)] :

There are two ring stands; both are of tan ware. One has a wide base of about 17 cm. in diameter, ledged underside. The stem is decorated

221. Sankalia, H.D., et al. 1955, *op.cit.* pl.35 No.3, p.178

222. Marshall, J., 1951, *op.cit.* pl.121, No. 8 and 9, p.406

223. Marshall, J., 1939, *Sanchi Sculptures*, Pl.63-Foucher A

224. Longhurst, A.H., 1938, *The Buddhist Antiquities of Nagarjunakonda*, Pl. X'D p. 228

225. Wheeler has suggested that the shape of amphorae is Roman in origin in *AI*, Vol.2, p. 3

226. Thapar, B.K., 1952, "Porkalam, 1948, Excavation of a Megalithic Urn-burial," *AI*, Vol. 8, fig. 4 No. 20, p.13

with multiple corrugations and ridges. The top portion is broken. In other stand, the wide base is decorated with a band of finger-tipped design. It is highly polished on both sides, but abraded on the exterior due to wear.

P. Finials [Fig 20, Nos. (4), (5) and (6)] :

There are two finials of terracotta, coarse red in colour with stepped mouldings and tapering to a pointed knob at the top. One finial has seven mouldings or ridges and a pointed knob at the top. Below the lower-most moulding is a hole, probably for inserting some flag-like object or keeping the finial in position.²²⁷

In Bharhut sculptures we notice short and long finials at the top of the door-ways. One tiled hut²²⁸ has a long finial at the top. In one of the sculptures at Sanchi²²⁹ the rounded gate-way has four finials at the top. We also find in the Nagarjunakonda²³⁰ sculptures, in a panel depicting the 'dead body scene', the rounded *torana* over the gate-way has three finials with mouldings. Terracotta finials are the most common ones in many other sites in India with a variety of shapes, such as at Kolhapur,²³¹ Bhita, Ramathirtham, Ujjain and Kondapur.²³²

Ritualistic Pottery [Fig 21, Nos. (1), (2), (3), (5) and (6)] :

There are a very few pots to be characterised as ritualistic wares. Among them is a globular vase stamped with *triratna* or *nandipada* symbol at four places. In between the two stamped *nandipadas* three perforations were made, one at the top and two below, which in all likelihood may represent the 'visage'. In one of the Megalithic burials, at Peddamarur in the Mahabubnagar district, a pot with three such perforations was found at the north-east corner of the cist. In the Indian architecture (*Vastu Sastra*) the north-east corner is said to be presided over by the Goddess Lakshmi. In the visage pot at Dhulikatta all the three perforations are noticed alongside *nandipada*. As such the pot may represent the *mangalakalasa* into which the Goddess was invoked (*avahana*). A vessel known as *bingara*²³³ (Skt. *bhringara*) of the Jain literature, *binkara*²³⁴ of the Buddhist texts was usually ornamented with *triratna*

227. Sankalia, H.D., 1952, *op.cit.* Type 94, p.77

228. Barua, B., 1934, *Barhut*, fig.105

229. Marshall, J., 1939, *op.cit.*, p.52

230. Krishna Murthy, K., 1977, *op.cit.* pl. 22, p.152

231. Sankalia, H.D., 1952, *op.cit.* T.94, p. 77

232. Compare with the object displayed in Kondapur Museum *ibid* by Sankalia, p. 77

233. Deo, S.B., Pots and Utensils from Jaina Literature, *BDCRI*, Vol. XIV, No.1, p.39

234. *Vinaya Text I, Mahavagga*, 1-22,18 Translated by Davids, T.W.R. & Oldenberg Herman, Sacred Books of the East Series (Oxford 1881), p.143

symbol.²³⁵ The word *bhringara* sometimes appears as an auspicious symbol.²³⁶ *Bhringara* literally means a golden pitcher used at the inauguration or coronation of a king. In the ordinary usage it may mean any pitcher or vase used for religious purposes.

(b) *Dishes* :

As mentioned previously the excavation yielded a large collection of dishes of black and red ware, made of finely levigated clay and well burnt. The interior surface of the dishes is invariably black and the majority of them were used as table ware. But there are some with a white painted spiral design at the base inside. In the intervening space between the spirals there are white-painted dots of various sizes. The dishes with spirals is a characteristic of most of the early historical sites in the Karimnagar and other regions.

The spiral design is traced from the proto-historic period, not only in India but elsewhere²³⁷ also. We find the design on the painted grey ware at Hastinapur²³⁸, on the cream-slipped Malwa ware at Navdatoli²³⁹, on the early historical wares at Salihundam²⁴⁰, etc. In the proto-historic paintings at Kokapet near Hyderabad we find a similar design painted in red ochre over a rocky boulder. We find several volutes or spirals in the Buddhist sculptures. Many ornaments such as ear, finger or toe-rings from chalcolithic period onwards are in the shape of spirals. Among the finger-rings found at Dhulikatta the majority of them are spirals. It is not clear whether the spiral design has any religious significance; but certainly the form has evolved from the conch or *sankha*, venerated as a sacred object from a very early period. In a semicircular limestone slab from Kesanapalli²⁴¹ there is a relief carving of *nandipada* entwined by creepers, lotus medallions, fish and spirals (discs with incised concentric lines). As the spirals are found along with other symbols, viz. the fish, lotus, etc., they may also represent one of the products of water, viz. the conch shells. The cowrie shells formed a part of wealth during the early periods.

The dish with the spiral design may have been used for purposes of religious offerings. Salihundam excavations recorded a considerable number of dishes inscribed with the names of the donors in Brahmi.

235. Joshi, N.P., 1967, *Life in Ancient Uttarapatha*, p.131

236. Smith, V.A., 1901, *The Jalna Stupa and Other Antiquities of Mathura*, p. XI

237. Hood, S. & Birchall, A., 1973, *Bronze Age Migrations in the Aegean*, edited by Cross Land, R.A., Duck Worth, pl. II, p.66

238. Lal, B.B., 1954-55, *op. cit.* fig.9, No. 59 & 71, p.42 and 43

239. Sankalia, H.D., 1971, *op. cit.* fig.38-design 54, p.114

240. Subrahmanyam, R. 1964, *op. cit.* fig.14, No. N. p.45-47

241. Khan, A.W., 1969, *A Monograph on an Early Buddhist Stupa at Kesanapalli* Archaeological Series, No.27, pl.VII

One of the dishes from Peddabankur was inscribed in Brahmi as *Hema sa*. The offerings of flowers or of such kind in the dish may pertain to a devotee by name Hema.

(c) *Censer* [Fig 20 No. (11)] :

A pedestalled cup, decorated with bands of vertical and oblique lines and tridents, which could have been used as a censer or offering and as suggested by Marshall regarding such stands found at Taxila²⁴² recovered. It might have been used as a drinking cup as well.

Some of the pots have cord impressions in the shape of the Brahmi letter '𑀕' 'Ma'. This design is probably derived or itself a part of the endless loop-design noticed in the proto-historic levels elsewhere. Similar '𑀕' design over the pottery from Nasik²⁴³ is found between two *swastikas*. Sankalia suggested that palaeographically the letter 'Ma' (if it is really Ma) may belong to the pre-Christian period. But its occurrence between two *swastika* symbols may suggest that it could also be an auspicious symbol either an abbreviated form of the endless loop noticed at Mohenjodaro, Harappa, Taxila, etc. or a replica of the Taurin symbol found on punch-marked silver coins, and sometimes over pottery as at Ahichchhatra²⁴⁴.

Several pots were stamped with the *nandipada*²⁴⁵ or trident. Many variations are noticed in this design. In the first type the tip of the side prongs are split into branches, each forming into a separate tip. The central prong is of the same height as the side prongs. In the second type, the side prongs are like arrow-heads; but the central prong, along with the lower spikes, appears like a barbed arrow-head, standing on a stepped base. In the third type, each side prong looks like a trident by itself and the central prong is topped by a radiating circle.

Decorated Pottery [Fig 22 (a) and (b)] :

Many potsherds were decorated with various designs such as chevrons within the marginal bands²⁴⁶ of vertical notches, oblique notches above horizontal bands, circles enclosing endless triangles, creepers emanating from the circles, lotus enclosed in a serrated circle, tree symbols below concentric circles, six-petalled lotuses, 12-petalled lotuses, and criss-cross lines between marginal bands²⁴⁷, enclosed by notches on one side and oblique lines on the other.

242. Marshall, J., 1951, *op.cit.* pl.125, No.130, p.421

243. Sankalia, H.D., et al, 1955, *op.cit.* fig.43 J, p.81

244. Gosh A. et al. 1946, "Pottery of Ahichchhatra, U.P.", *AI*, Vol.1, fig.7 obj. 2, p.45

245. Lal, B.B., 1954-55, *op.cit.* pl.XXXI T.2, p.70

246. Sarkar, H., 1966, "Kesarapalli", 1962, *AI*, Vol. 22, fig.13 T. 4, p. 71

247. Subrahmanyam, R., 1964, *op.cit.* Type 2, fig. 33, p. 81

Graffiti (Fig 23) :

Quite a good number of graffiti marks are found over the pottery from the early historical levels. These marks include arrow, inclining triangle, plough, Brahmi 'Ma' (𑀩), fish, circle enclosing a cross, bow and arrow, a vertical line bisecting an arrow, three vertical lines intersected by a horizontal line, inverted trident, two parallel lines bisected by another set of parallel lines, etc.



CURRENCY AND COINAGE

During the early historical period, coinage became universal. Even the *Mahasenadhipathis* and *Maharathis* and sometimes *Mahatalavaras* were issuing coins in their names besides the coins of imperial dynasties. In all the countries the common measures have been derived from the natural objects such as the measures of length from fingers, palms, feet, etc., weight from seeds like *masha*, etc. The Indian *pana* may probably mean a handful or *anjali* i.e., a handful of cowry shells usually reckoned as eighty. The *pana* was also a copper coin equivalent to 80 *rathis* in weight and 80 cowries in value. Four *panas* make one *taigka*, a word probably derived from the sound of the coin when hit against a stone.

The Earliest Coinage :

As early as the Rigveda²⁴⁸ we find the mention of *nishkas* as a sort of currency. Satapatha Brahmana mentions *nishka* as a gold coin. Mahabharata²⁴⁹ refers to two classes of wealthy people, or wealth amassed into one hundred and one thousand *nishkas*. There is another denomination *Suvarna*, but it is not possible to indicate its relative weight. In Satapatha Brahmana²⁵⁰ the *nishkas* offered by Uddalaka Aruni to his learned rival Svaidayana was of gold. Kautilya²⁵¹ mentions a coin by name *kara* which is equivalent to 10 *panas*.

The silver coin was known as *satamana*. In Satapatha Brahmana²⁵² it is stated that *satamana* was also a gold coin. In the Vedic literature the *mana* was a measure equivalent to *krishnala* or *raktika*²⁵³. According to Manu, the silver *satamana* is equivalent to ten *dharanas* or 320 *rathis* in weight, which is equivalent to 560 grains. The silver punch-marked coin was usually known as *karshapana* or *purana*. The Phoenician unit²⁵⁴, a small coin of 56 grains or 1/4 of Hebrew *shekal*, may have connection with the old Indian *karshapana*, which is also 56 or 57 grains. The copper coin was known as *pana* or

248. Vedic Index, 1958, p.435, translated by Macdonell, A.A. et.al

249. Mahabharata. Anusasana-parva 13-43, 1950, translated by Sukthankar S.Vishnu

250. Satapatha Brahmana XI 4.1.8, translated by Eggeling Juhus, Part V, Vol. XLIV, p.53

251. Shama Sastry, R., 1915, op.cit. p.303

252. Satapatha Brahmana VIII 2.3.2. op. cit. Vol. XLIII, part IV, p. 33 (Hiranyam Dakshina Suvarnam-Satamanam Tesyoktam)

253. Vedic Index II. 152, 1958, op.cit.

254. Cunningham, A., 1963, Coins of Ancient India, p.4

karshapana. According to Manu one *karsha* is equivalent to 80 *raktikas* in weight. Pana, as already noted, is equal to a handful of cowries numbering 80.

Coins from Karimnagar Region :

Previously about 418 punch-marked silver coins were discovered from an unrecorded place in Karimnagar region and now exhibited in the State Museum, Hyderabad. Later in 1952 a hoard of 8 coins came from Nustulapur, situated about 15 km. from Karimnagar. The Nustulapur hoard²⁵⁵ is of great importance because of its association with 3 Roman coins, belonging to Pontiff Augustus Caius Julius Octavianus (27 B.C. to 14 A.D.) and Tiberius Claudius Nero (14 to 37 A.D.). Peddabankur excavation yielded two hoards of silver punch-marked coins, one consisting of 168 and the other of 30.

Srinivas²⁵⁶ classified the previous hoard from Karimnagar on the basis of the fabric of the coins into 5 categories. Class 'A' consisted of rectangular, small, thick and clipped coins. Class 'B' slightly larger and clipped. Class 'C', small, thick but not clipped. Class 'D', slightly larger and unclipped. Class 'E' circular. Subsequently Gupta²⁵⁷ studied the coins and classified them into 4 periods. Coins of Period-I are of thin and broad fabric, equated with the big Bhir Mound hoard. Coins of Period-II are of thin or medium fabric and are square dumpy or circular types. These coins were dated to the pre-Mauryan period. Coins of Period-III are of dumpy fabric, square and globular. Regarding the date he suggested that this group is the earlier of the series. Period-IV are of dumpy fabric for which no date has been specifically mentioned.

The coins of two Peddabankur hoards can be broadly divided into rectangular and round types. Among the rectangular type coins there are two variations, clipped and unclipped. Likewise among the round type coins there are two variations, the rounded and ovoid. The rounded are dumpy, whereas the ovoid are thin. The weights of the most of the coins range between 3.32 to 2.4 grams (51 to 38.12 grains). Most of the coins have uniformly five symbols, varying from coin to coin, but the solar symbol with sixteen rays around a circle with conspicuous dot in the centre is invariably seen on all the coins. Only the other four symbols vary [Plate 101 (a) and (b)].

Die Cast Coins :

Next to the punch-marked silver coins come the earliest copper coins, which are dated by some scholars to as early as 5th century B.C.

255. Gupta, P.L., 1960, *Punch-marked Coins in A.P. Government Museum*, pp.4-33

256. ARADN, 1928-29, pp.39-66

257. Gupta, P.L., 1960, *op.cit.* p.8

They were cast by pouring the molten metal into a cavity formed by joining the two moulds together. This must have been a very ancient practice in India. These coins are for the most part anonymous. We find cast coins issued during the close of the 3rd century by the kingdoms of Kausambi, Ayodhya and the Mathura, some of which bear the names of the local kings in the Brahmi²⁵⁸ script. A hoard of 1600 lead coins, similarly moulded, were recently found at a Buddhist site at Nandalur²⁵⁹ in the Cuddapah district. These coins bear on the obverse a horse to the right and a tree in railing and a wavy line below. Some coins bear some illegible legends.

The earliest die-struck coins, with device on one side of them, are assigned to the end of 4th century B.C. Some of them, having a lion device, appear to have been issued at Taxila. Other coins bearing various Buddhist symbols, such as *Bodhi* tree, *swastika*, etc., may belong to the time of Asoka. In the die-struck coins of Eran we have an illustration, as Rapson says, of the development of the punch-marked system into die system. These coins are of rectangular copper pieces, and the device on each consists of a collection of symbols, like those appearing in punch-marked coins such as elephant, lion, the Ujjain symbol and tree, etc.

COINS OF MINOR DYNASTIES OF THE PRE-SATAVAHANA EPOCH :

Before discussing the coins of the Satavahanas, it is necessary to have a knowledge of some minor dynasties or feudal chiefs under some unknown imperial dynasties. The coins of Sivalakura were catalogued by Smith²⁶⁰ as Andhra coins. There are two types known so far. They are the coins of '*Rano Mathari Putasa Sivalakurasa*'. Along with this legend, a bow and an arrow pointing upwards on the obverse and *chaitya* with four tiers surmounted by a crescent, with a tree in railing on the reverse are found. The second coin bears the legend as '*Rano Gautami Putasa Vilivaya Kurasa*'. On the reverse, instead of a crescent over the arched hill, there is a *swastika*. Both these coins come from Kolhapur.²⁶¹

During the excavations at Brahmapuri uninscribed coins were found in the lower most layer of square L. In the same square from the layer-9, a coin was found bearing the legend conjecturally restored as '*Mulanandasa*' with a tree in railing and a wavy line below on the

258. Brown C.J., 1922, *The Coins of India*, London, pp.18-19

259. Personal communication from Ramachandra Murthy N.S., 1978, Tirupathi.

260. Smith V.A., 1972 (Reprint) "Coins of Ancient India, Vol. I" *The Catalogue of Indian Museum*, Delhi, pp. 209-210

261. Sankalia H.D., 1952, *op.cit.* p.140

reverse; and on the obverse the above legend and a six-arched hill. Gupta has ascribed these coins to 'Kura' rulers on the basis of the form of the hill.²⁶²

Thirteen more coins bearing the legend *Maharathisa Kurasa* and one coin bearing *MAHARATHISA (VILIVA) YAKURASA* were found in layers 8, 9 and 10. These coins have a bow with an arrow and a legend. Evidently these coins were issued by 'Kura' and 'Vilivaya Kura'.

Seven Satavahana copper coins of *YANA SATAKANISA*, etc. were found in layers 3 to 6 and thereby suggesting that the Kura kings were supplanted by the Satavahana rulers in this area.

In the Chandravalli²⁶³ excavation the coins of *SADAKANA KALALAYA MAHARATHI* came from a strata 7 to 9 below the stratum in which the coins of the Satavahanas were found. Ramarao²⁶⁴ has ascribed the coins of Maharathi Sadakana Kalalaya to the reign of Satakarni I as the letters 'HA' and 'MA' resemble those on the coins of Maharathi *SADAKANAKALALAYA*.

Mirashi²⁶⁵ published many coins from Kondapur of one Mahisha dynasty. Some of these coins have legends reading as 'SENA PATI PUTA', 'RADAJI PUTASA' 'SAGAMANA'. The other coins have the legends as 'SAGA MANA CHUTA KULASA MAHASENA PATASA RADAJA PATA'.

But a similar coin with a big *swastika* in the middle and legend 'MAHASENA' on the obverse and an arrow and thunderbolt in a dotted square on the reverse is noticed at Peddabankur from an earlier level than the Satavahana. Mirashi ascribed this coin to the post Satavahana age. He admitted that the characters on the coin are Kushana type and the *swastika*, an ancient symbol, noticed only on the earliest Satavahana coins.

It is now evident from the above discussion that the coins belonging to *MAHARATHIS* and *MAHASENAPATIS* are earlier than the Satavahana coins.

262. Gupta P.L., 1972, *Satavahana Coins from Excavations. Coinage of the Satavahanas and Coins from Excavations*, Ed. Dr. A.M. Shastri, Nagapur University, 1972, p. 129

263. Wheeler R.E.M., 1947-48, *op.cit.*, pp.288-295

264. Rama Rao M., 1961 "Satavahana Coins in A. P. Government Museum", *Museum Series-No. 2*, pp. 12-13

265. Mirashi V.V., 1950, "Some Minor Mahisha Coins from Kondapur Excavations" "*Numismatic Series No. 8, Published by Hyderabad Museum*, pp.2-3

SATAVAHANA COINS :

Recently, a few coins collected from the surface came to the notice of Parabrahma Sastry.²⁶⁶ He identified 6 of these coins as pertaining to Simuka or Chimuka, the founder of the Satavahana dynasty. The coins have on the obverse an elephant to the left, with its trunk hanging and traces of the Ujjain symbol and the legend as 'SIRI CHIMUKA SATA'; and on the reverse the Ujjain symbol with a double circle and a crescent on one orb. Parabrahma Sastry identified CHIMUKA of these coins with SIMUKA of the Naneghat label inscription and the founder of the Puranic list of the Satavahana dynasty. Palaeographically, Sastry ascribed these coins to the last part of the first century B.C.

There is a large collection of Satavahana coins from the Karimnagar region, which includes the coins of Satavaha Satakarni I, Gautamiputra Satakarni, Vasistiputra Pulamavi, Siva Siri Pulamavi, Yajna Satakarni and Rudra Satakarni.

Smith²⁶⁷ noticed that the coins of the dynasty are of the northern rather than the southern in type and in fact have nothing in common with the peculiar coinage of the South. But it may be pointed out that the peculiar coinage of the South is evidently of a later date than the times of Satavahanas. However some of the prominent devices and symbols, which occur on Satavahana coins, are seen on most of the primitive issues of North India, especially of Malwa, with which region the early Satavahana kings appear to have been politically connected²⁶⁸. The chief characteristic of the Satavahana coinage is the use of metals like potin and lead, the former being more predominant.

SILVER PORTRAIT COINS OF SATAVAHANAS :

The rare silver issues of Satavahanas betray unmistakable influence of silver coins of Saka-Satrapas of Western India with whom they had often come into conflict. About a dozen silver portrait coins of Satavahana kings came to light. These coins belong to Vasistiputra Satakarni²⁶⁹, Gautamiputra Sri Yajna Satakarni²⁷⁰, Vasistiputra Pulamavi²⁷¹. So far there are only four coins of Vasistiputra Satakarni bearing the legend 'RANO VASITHI PUTASA SIRI SATA

266. Parabrahma Sastry P.V., 1979, APJA, Vol. I, No. I, pp.133-139

267. Smith V.A., 1972, *The Coins of Ancient India*, p. 208

268. Rapson E.J., 1908, *British Museum Catalogue on Coins of Andhra Dynasty*, pl. XCII ff.

269. Gopalachari K., 1976 (reprint), *op.cit.*, p.1

270. *JASI*, Vol. XII, p.127 from Tripuri

271. *JNSI*, Vol. XIV, pp. 1-4

KANISA' on the obverse and on the reverse 'ARAHANAKU VA HITI MAKANAKU TIRU CATA KANIKU'. There are seven coins of Gautamiputra Yajna Satakarni. These read as 'ARAHANAKU VAHITTI - MAKANAKU TIRU HATAKANAKU ARAHANAKU GOTAMI PUTAKU HIRU YANA CATAKANAKU'.

On the coins of Vasistiputra Pulamavi, we find on the reverse 'ARAHANAKU VASITI PUTAKU TIRU PULAMAVIKU'.

Interestingly, a single silver portrait coin came from Dhulikatta excavation pertaining to Vasistiputra Siva Siri Pulamavi. The coin on the obverse has the youthful head of the king with an aquiline nose, protuberant chin and a dome like head-gear. The inscription in Brahmi is in the clock-wise direction, probably starting at 2'o clock. The beginning letter 'VA' is broken. The other letters read as 'SITHI PUTASA', then a break for the neck of the king, again the inscription starts at 7'o clock as 'SIVA SIRI PULAMA.....'.

On the reverse there is a six-arched hill crowned by a crescent. On the left is Ujjain symbol and a wavy line below. The inscription starts probably at 7'o clock but the letters upto 'PU' are damaged and then it reads as 'PULAMAVIKU ARAHANAKU VAHI.....'.

Two perforations were made on the coin for suspension around the neck. (Plate 102).

Roman Coins :

Large number of Roman coins of the imperial period travelled to India, brought by the traders during the 1st few centuries of the Christian era. These coins have been discovered in many parts of the country. The movement of the coinage from Rome to India took place in two forms. Merchants, carrying on large transactions with foreign countries, found gold coins a necessity for possession as wealth and for external commerce, while silver was essential for small change. Much of the Roman currency found in India was brought by the Roman subjects to India in order to buy whatever goods they were unable to get by exchange of Roman products.²⁷² Pliny²⁷³ says that at the lowest reckoning India, Seras and Arabia drained off the Roman empire, a hundred million sesterces.

About 47 silver coins consisting of 39 Roman dinarii and 8 punch-marked coins were found at a village, Nusthulapur,²⁷⁴ about

272. Warmington E.H. 1973-4 (reprint), *op. cit.* p.274

273. Cited by Warmington E.H., *op.cit.* p. 242-44

274. Gupta P.L., 1960, *Roman Coins from A.P. Government Museum, Museum Series 10*, p. 73

15 km. from Karimnagar. Of the 39 Roman coins, 13 are of AUGUSTUS and the remaining 26 belong to TIBERIUS.

Peddabankur excavation also yielded 5 Roman coins and four coins of imitation of lead, plated with gold. These imitations have double perforations to be suspended around the neck. Among the 5 coins, 3 coins bear the devices as follows :

Obverse : Laureate head of Augustus;

CAESAR AVGVSTVS DIVI PATER PATRI

Reverse: Caius and Lucius, standing and facing each other on either side of two shields. Behind are two spears crossed. The inscription reads as:

"AV GVSTI COSDESIC PRINC IVVENT"

The other two coins belong to TIBERIUS

Obverse : Laureate head of Tiberius

TICAESAR DIVI AVG FAV GVSTVS

Reverse; Livia seated right, "PONTIF MAXIM"

All the Roman coins, including the imitations, were found in layer 2, associated with the Satavahana coins of Satakarni, Gautamiputra, etc. The Roman coins belong to Augustus (29 B.C. to 14 A.D.) and Tiberius (14 to 37 A.D.). No coin of the post Tiberius period was found, which may suggest that the contacts between Rome and this region must have ended by that time [Plate 103 (a) and (b)].

STONE OBJECTS

The stone objects mainly consisted of querns, pestles, mullers, dabbers and a small cup made on lathe with a featureless rim. Most of the querns are legged and of varying sizes. A big quern, which is intact, measured 40 cm. long and 20 cm. broad. It has a rectangular grinding face, with undulations in the middle. Its surface was much abraded, due to soft nature of the red sandstone with which it was made. Fortunately a pestle (20 cm. long and a diameter of 8 cm.) was found near the quern. The other querns, smaller in size, are of granite. In some cases yellow quartzite or dolerite were also made use of. A single completely ground-stone, with a knob in the middle, may possibly be the lower piece of a rotary quern.

Pestles or Mullers :

The above noted red sandstone pestle is exactly cylindrical in shape. It is commonly noticed that both the ends of the pestle were grooved and rounded to facilitate easy grip. There is another type, which is cylindrical in the middle and its both ends made bulbous.

Dabbers :

There are two dabbers of similar shape with concave sides and grounded ends, the working-end bigger than the butt-end.

WEIGHTS AND MEASURES

In Satapatha Brahmana²⁷⁵ the word '*prasrita*' has the meaning 'handful'. It literally means stretched-out or expanded. Similarly the term '*anjali*' is also a measure which is two handfuls. It is still known as '*dosilli*' in Telugu. The *pana*, a handful was derived from *pani* the hand. The Indian *pana* was a handful of cowrie shells reckoned as 80 *raktika* seeds in weight (144 grains).²⁷⁶

The Balance :

The weights (*pratimana*) were usually made of iron or locally available stone or of such material which neither contracted when wetted nor expanded when heated. A balance is called *samavritta* when its lever measures 72 *angulas* long and weighs 53 *palas*. The balance is sometimes graduated.²⁷⁷ The scale pans, according to Varaha Mihira²⁷⁸, should be 6 *angulas* in diameter and be fashioned from linen cloth. Each of them connected to the balancing rod by means of four strings.

There are a good number of balancing rods of iron from Peddabankur excavations. The bigger rods measured 40 cm., and the smaller ones 30 cm. The rods are thickened in the middle and taper off to either end. Many of them being incrustated, it is difficult to find out the marks of graduation. The centrally thickened rods may indicate that they were of double panned balances.

The excavation yielded two recognisable weights: one is a cubical, made of black basalt and the other is a perfect sphere of black granite. The basaltic weight measured 120 grains and is hexagonal. The base is flat and the top is convex. The second weight, which is a sphere, appears to be made on a lathe and weighed 70 grams. Interestingly, it was stamped with the Ujjain symbol, four circles connected by a cross. Evidently, it was issued under the royal authority. It may prove that the weights and measures were standardized. Kautilya²⁷⁹ prescribed that the weights and measures should be manufactured under the royal

275. Satapatha Brahmana, *op.cit.* 5-1-4-12

276. Cunningham A., 1963, *op.cit.*, p.2

277. Shama Sastry R., 1915, *op. cit.*, p.28

278. Shastri A.M., 1969, *Brihatsamhita of Varahamihira*, p. 339

279. Shama Sastry R., 1915, *op. cit.*, p.127

authority (superintendent). Common people must have used riverine shingle as weights – a large number of which have been found in the excavations.

Measures (Fig. 24):

The *sarava*²⁸⁰ or earthen pot was used as a measure of grain. Kautilya²⁸¹ mentions that two hundred *palas* of grain (*masha*) make one *drona*, 16 *dronas* make one *vari* or 20 *dronas* make one *kumbha* and 10 *kumbhas* make one *vaha*.

Globular Measures :

Interestingly the excavation at Dhulikatta yielded a large number of *saravas* or *kumbhas*, half-*kumbhas* and quarter-*kumbhas*. They were found inside a brick granary within the palace complex. The *sarava*, with a narrow mouth and everted rim, has a globular body. The half-*sarava* has a bevelled rim. The red slip of the vessels is much abraded and now visible in patches.

Straight-sided Measures :

The straight-sided vessels, slightly tapering to the mouth with featureless rim and rounded base, from Peddabankur excavation, may also have served as cubic measures (*parimana*). One pot has three incised grooves at the top, 2 cm. below the rim, the second in the middle, 8 cm. below and the third at the base, about 17.5 cm. below. The mouth has a diameter of 13 cm. and the total height is 24 cm. Similarly cylindrical vessels, made of sheet iron, are commonly known as *addas* or *manikas*. Forty such *addas* make one *goni* or sackful. Half of one *adda* is a *thavva*, half of *thavva* is a *sola* and half of *sola* is a *gidda*.

Standard Measure :

Many pots from Peddabankur and Dhulikatta were stamped with *nandipada* or trident. If the symbol is only of ritualistic purport, it would not occur so commonly. It is likely that the *nandipada* was another royal standard mark. The symbol may represent the Mother Goddess and in this context Dhanya Lakshmi; the stamp of the same over the measures is quite appropriate.

280. Satapatha Brahmana 5-1-4-12 "Athah Sarhaspatyam Charum Nalvarum Saptadasa Saravam Nirepati".

281. Shama Sastry R., 1915 *op.cit.* pp.129-130

URBANIZATION

There are clear evidences of urbanization during the early historical period. Like India of the present day the Andhra region, during the period under discussion, was marked by both the urban and rural areas. Politically and commercially important towns, such as Dhulikatta, Kotilingala, Vadloor and Budigapalli etc., were surrounded by mud fortifications with gate-ways at the cardinal points. Kautilya²⁸² states that on all the four quarters of the boundaries of the kingdom defensive fortifications, against an enemy at war, should be constructed. The fortifications were of four kinds: a water fortification (*audaka jaladurga*) such as an island in the midst of a river; a mountainous fortification (*parvatha durga*); a desert (*dhanvana durga*) such as a wild tract, devoid of water and overgrown with thicket; a forest fortification (*vanadurga*) full of wagtail, water and thickets. Many of the fortifications in the Karimnagar region were found on the plains and it is beyond our knowledge whether some of these forts, to be designated as *vanadurga*, were surrounded by forests as most of which is now denuded.

However, we have evidence of a *jaladurga* at Kotilingala, where the mud fort is situated at the confluence of the Kapparaopetavagu and river Godavari. The 50 hectares extensive historical site is encompassed by a mud fortification with gate-ways at the cardinal points.

The mud ramparts were raised with the earth dug out from outside the settlements and the trenches thus excavated simultaneously served as moats. It appears that these moats were full of lotus flowers, as found in the sculptural representation at Sanchi.²⁸³ According to Pliny,²⁸⁴ the cities were defended by marshes, which served as ditches wherein crocodiles were kept. They are known to have a great avidity for human flesh and prevent all access to the city except by a bridge. At Dhulikatta there are traces of a moat around the ramparts. Unlike the Kotilingala, Dhulikatta fortification was raised in the midst of arable plains and provided with four gate-houses and the guard-rooms. The gate-house, with sufficient space in the middle for a pathway, was provided with casemates or ambush niches,²⁸⁵ on either side. The

282. *ibid.*

283. Marshall J., 1918, *A Guide to Sanchi : Sculptural Representation on the Western Gate-way of Sanchi*, pl. 88

284. Majumdar R.C., 1960, *The Classical Accounts of India*, Calcutta, p. 345

285. Lal B.B., 1949, "A similar ambush niche with flight of steps but described by Lal as Guard-room", *op.cit.* fig. 4

gate-way must have had one or many storeys with a terraced roof, railings and pillars. The middle path-way was paved with rubble and veneered with a thick layer of sand and morrum.

Wheeler's excavation at Brahmagiri²⁸⁶ also brought out a 5.30 m. broad street as at the Isila town site. It is paved with rubble and the boundaries are marked by flat slabs. Similar may be the case with the important roads inside the towns of the Karimnagar region. However, it appears that the national highways were not paved.

Water-ways :

As many of the settlements have grown up on the banks of major and minor rivers, people might have covered distances by boats, as the journey by water was safer than by roadways. The un-paved roads would not be of much use during the rainy season. Further, the larger quantity of internal trade and commerce used to be carried by the rivers due to lack of all-seasonal roads. Even the existing ones passed through thick jungles, infested by wild animals and highway robbers. The goods had to be transported by carts, drawn by oxen or buffaloes. Horses were very few and practically monopolised by the kings for use at times of war. An inscribed terracotta-seal from Peddabankur reads as "*Mahatalavarasa Vajasamikasa Seva Sabha*." In the middle of the inscribed seal is the figure of a horse. Here the Mahatalavara calls himself Vajasasri or 'the lord of horses'.

Elephants were also used for the movement of cargo but it was a slow mode. The Karimnagar region has a net-work of perennial and navigable rivers. The rivers were crossed by boats. They were made of wattle and covered with animal skin for making it water-borne. These were known as *bhastra*.²⁸⁷ Even horses were transported from bank to bank by these *puttis* during times of war. In *Periplus*²⁸⁸ it was mentioned that the bigger vessels, known as *sangara*, were made of logs bound together, but those which made the voyage to the Chrys and to the Ganges were called *Colandi* which were very large.

Road-ways :

The planning of roads and their construction formed an important part of town-planning. According to Aitareya Brahmana the royal thoroughfare was known as *rajapatha* and the national highway as *mahapatha*. The *mahapathas* were connected by numerous feeder

286. Wheeler R.E.M., 1947-48, *op.cit.*, pl. LXXI B, p. 207

287. Agrawala V.C., 1953, *India as Known to Panini*, p.156

288. Schoff W.H., 1974, *op.cit.*, pp.46 & 243

roads, leading to different parts of the country. The *rajapatha* was well constructed and comparatively free from the dangers than *mahapatha*. The *rajapathas* and roads of important towns were paved with rubble. Arthashastra mentions chariot roads, royal roads, and roads leading to minor forts, to countryside and pasture-grounds, etc. But it appears that the condition of the national highways was bad. In the *Periplus*²⁸⁹ it is mentioned that the cargo is brought to Barygaza from these places by wagons and over great tracts without roads.

The Karimnagar region was traversed by highways from the North to the South and from the East to the West. The caravans travelled from Vidarbha region to Andhra, from there to Dhanakataka towards south-east and to Govardhana country (Nasik region) towards west. The northern route from Akara Avanthi (Ujjain), after crossing Narmada and proceeding to the ancient town of Bahal (district East Khandesh) from where the caravan either went south to Prathisthanapura (the Karimnagar region) or west to Nasik²⁹⁰. When Hiuen Tsang²⁹¹ travelled from Kalinga to Kosala, which is about 1800 Li, the country was surrounded by mountains and a succession of woods and marshes. The route through the Karimnagar region to Paithan was covered with thick jungle, infested with savage beasts of prey. The ox-carts would be used near each end of the journey. Much of the goods must have been carried by caravan of pack animals. Daurte Barbosa²⁹² (1500 A.D.) reports: "They bring their goods-laden on great droves of trained oxen with pack saddles, like those of Castille, and over these long sacks thrown across, in which they pack their goods and behind them goes a drover who drives twenty or thirty oxen before him".

Drainage :

The sewage from the houses and wells was led out through covered or subterranean drainage. This was evidenced by a drain of bricks at Peddabankur placed in three courses with an intervening space of 12 cm. for the drain. The floor of the drain was also paved with brick. Much care was bestowed on to see that no breakage occurs. It was provided with a series of side-vents at regular intervals at both the lateral sides for letting out water to percolate into the earth, so that the drain till the end need not carry the entire sewage. At the end of the

289. *Ibid.*, p.43 & 51

290. Deshpande M.N., 1959, *op.cit.* pp.67-68

291. Nilakanta Sastry K.A., 1939, *Foreign Notices of South India*, Madras University Historical Series, No.14, p.96

292. Daurte Barbosa cited by Kosambi, D.D., 1956, revised edition-1975, Bombay, *An Introduction to the Study of Indian History under Satavahana Trade*, p. 276.

drain a deep 'V'-shaped pit excavated to let the drain water fall into it. In another case a terracotta soak-well was provided to let out waste water from a brick well. Each ring of the soak-pit measured 76 cm. in diameter and 38 cm. in height. But it appears none of the wells have washing platforms around. The sewage was allowed to percolate through or led out to a pit in the vicinity but care was taken that the percolated water did not enter again into the well by steening the wells with brick and the gap between the brick lining and the trench wall dug out for the construction of the well was packed with morrum and hard earth. At Dhulikatta it was noticed that a drainage was lined with a series of terracotta pipes by inserting one into the other. In other case a well inside the palace complex had a long covered drain which was led out to a soakage-pit.

Water Supply :

The fundamental necessity for a town or a village was a good natural supply of water. Most of the towns and villages were situated on the banks of rivers or nullahs with plentiful supply of water all throughout the year. The Kotilingala mud fort is situated on the banks of river Godavari. Likewise the township of Dhulikatta is on the right bank of Hussainivagu and Peddabankur is situated about 10 km. down stream, on the same nullah. The nullah used to dry up during the summer which necessitated the construction of several brick wells at Dhulikatta as well as Peddabankur. Peddabankur excavation exposed as many as 22 wells; most of them steened with wedge-shaped bricks. There is only one well steened with terracotta rings. Even these wells dried up in the course of years and later used as refuse pits into which garbage, such as animal bones, broken potsherds, charcoal and ash, etc., was thrown in. In one of the wells at Peddabankur a complete skeleton of a horse was found. Many other wells contained a large collection of animal bones.

Storage :

Water was mainly stored in huge earthen ware jars and brick cisterns. Some of the cisterns at Peddabankur were paved with bricks over the floor but some had a flooring of hardened morrum by ramming.

Industries :

Unlike the present day, industries were not monopolised by a few individuals during the early historical period. There is no evidence of the existense of either big industries or big business. The settlements were concentrated at the places where raw material was abundantly available. But industries were of cottage type.

They were scattered from village to village and every village or town was self-sufficient. Iron ore was collected and brought to the towns or villages where it was smelted and forged. The smelting furnaces consisted of simple terracotta or brick kilns. Even in some cases it consisted of a heap of cow-dung, covered with green leaves, cactus, etc. The crucible in which steel was produced is only 10 cm. in diameter. The occurrence of large quantities of iron slag, at almost all the settlements, is a proof that iron-smelting was practiced as a home industry. Iron ore was found at Warangal, Konasamudram in Nizamabad district, Dindurthi, Jagtial, etc. The entire hill range from Tellakunta to Dongathurthi, about 5 km. from Dhulikatta, is full of iron ore. Ancient iron-working spots were noticed over a series of hills near Tellakunta. The iron ore was collected from the places and turned into fine steel known as 'wootz' at the famous steel producing centres like Konasamudram, etc., which attracted traders not only from different parts of India but also from abroad. The swords made of fine Indian steel have been very famous since the time of Ctesiss and the Roman trade in the Indian iron and steel was a very important one. It appears the Indians sent their steel in their own ships, probably to keep the secret of its production.²⁹³

Next to iron, copper was an important metal required for coinage, ornaments, etc. In fact, most of early coinage was in copper. According to Periplus copper was exported from Barygaza to Oman and the Persian Gulf. Pliny too mentions that copper, iron and red lead were shipped from India to the Persian gulf and the ports of Red Sea for marketing. Cosmos attested that copper was found at Kalyan and even Ptolemy speaks of numerous copper mines in India. However, the evidence of either smelting or forging of the metal is not clear. The entire coinage and many of the ornaments were made of copper.

It is certain that lead was a rare metal which must have been imported from the Roman Empire through the western ports of India. It appears that lead was imported in the form of strips as attested by a large number of coiled strips at Peddabankur. Lead was also used for making thin foils for the manufacture of mirrors. There are also some ornaments such as bangles, beads, etc., besides coins.

Gem Industry :

Indians have, from a very early period, an excellent knowledge of gems. According to Arthasastra²⁹⁴ experts were stationed at the royal

293. Warmington E.H., 1974, *op.cit.*, p.257

294. Shama Sastry R., 1915, *op.cit.*, p. 86

treasuries for acquiring gems to the royal household. The practice of collecting gems was common during the early historical period. The gem cabinet was an essential part of every rich home, but the poor used glass imitations. The gems were used in several ways such as stones for finger rings, necklace, diadem, bracelet, etc. The gems included the diamond, opal or agate, carnelian, sard, onyx, emerald, bloodstone, jasper, cat's eye, amethyst, rock-crystal, sapphire, beryl, lapislazuli garnet, etc. It appears that the rivers and their basins formed the chief sources of the gems. The Indian rivers were popularly known as gem-bearing.

Commerce :

Commerce occupied an important place in the life of the people. We find several cases of workers prominently figuring in the contemporary records, such as *Kularikas* (potters), *Udayantrikas* (hydraulic engineers), *Tilapisakas* (oil millers), *Dhannikas* (corn-dealers), *Kolikas* (weavers), *Vasakaras* (bamboo workers), *Kasakaras* (brasiers), etc. Each of those artisans had a guild or *Sreni* of their own. The *Srenis* were corporate bodies wielding great influence in the state. *Sreni-dharma* had the force of law. The special feature of these associations was the banking facilities provided by them. An epigraph of Usavadata speaks of the craftsmen who were organised into powerful guilds "as those *kahapanas* have been invested in guilds dwelling at Govardhana (as follows) 2000 at a (monthly) rate of one *padika* per hundred with a guild of weavers (*Kolikanikaya*), and one thousand in another guild of weavers at the interest of $\frac{3}{4}$ *padika* per hundred (9 per cent). And those *kahapanas* are not to be repaid their interest only to be enjoyed".²⁹⁵

The *kahapana* of the time was of good silver as proved by some of the silver coinage issued by the Satavahana kings. Most of the crafts and trades were organised into guilds. We hear of a *Dhannika Senni*²⁹⁶, a *Kasakarasi*²⁹⁷ (*Kamvyakara Sreni*) and a *Tesakaraseni* in Junnar inscription. Each guild had an alderman called *sethin* (*sresthin*). There were *nigamasabhas*²⁹⁸ or town halls for congregation and business by the guilds.

Market Towns and Ports :

The market towns in the interior were Paithan, Sagara, Junnar, Kashakata, Nasika, Govardhana and Vejayanti. According to

295. Epigraphia Indica, Vol. VIII, pl.5, No.12, p.82 ff.

296. Epigraphia Indica, Vol. X, 1909-10 : Luders List, p.136

297. *Ibid.*, No. 1167, p.133

298. Epigraphia Indica, Vol. II, No. VII D.

Periplus²⁹⁹, Barygaza or Bharukacha (modern Broach) was the northern most port in the Dakshinapatha. The imports and exports were graphically described by the author of the Periplus. They are the Italian, Laodécian and Arabian wine, copper, tin, lead, coral, topaz, fine and coarse cloth, storax, sweet clover, flint-glass, realgar, antimony, gold and silver coins. The exports were spikenard, costus bedellium, ivory, agate, carnelian, lycium, silk cloth, mallow cloth, long pepper, etc.

The Satavahana port town of Sopara or Soparaka is a few miles to the north of Bombay but the greatest port in western Deccan was Kalyan which is the 'Calliène' of the Periplus. In the eastern Deccan the important market town was Danakataka, and the port towns were Kantakossyla³⁰⁰, Kodura and Allosygne in the Maisoliya region, which according to the Periplus³⁰¹ stretched a great way along the coast, before the island country.

299. Schoff W.H., 1974, *op.cit.*, pp.10-11

300. Nagarjunakonda Inscriptions: Luders List; No.1303, *Epigraphia Indica*, Vol.XX.

301. Schoff W.H., 1974, *op.cit.*, Sec.62

DRESS AND ORNAMENTS

(a) Dress :

It is said that the dress and ornaments are to be used in accordance with the time, region and position. The dress and ornaments are incorporated in the catalogue of 64 subsidiary arts (*anga vidyas*) in Vatsyayana's Kama Sutra³⁰². The costumes made of various kinds of fabrics such as *Karpasika* (cotton cloth), *aurunika* (cloth made from wool), *kutupa* (cloth made from goat's wool), etc. must have been used. We have the evidence of dress of the period under discussion from various sculptural representations and terracottas, etc. Whether it is a male or female, no upper garment was shown in most of the artistic representations. *Uttariya* or upper garment was a kind of scarf thrown around the shoulders. It was worn by men especially while observing a religious duty. The lower garment or the *antariya* corresponding to the dhoti was held in position by a *kamarabandha*. In some cases a waist band was used for the purpose. The upper and the lower garments were known as *satakas*.

Many of the representations of the Yaksha and Yakshi from Dhulikatta consisted of a pair of *Satakas* arranged gracefully in a variety of ways. Curtius Rufus³⁰³ stated that the Indians covered their persons down to their feet with fine muslin, shod with sandals and coiled clothes of linen round their heads. Arrian³⁰⁴ also recorded, as told by Nearchus, that the dress worn by the Indians was made of cotton. They wore an undergarment of cotton which reached beyond the knees half way down to the ankles, and also an upper garment which they threw partly over their shoulders and partly twisted in folds round their heads.

(b) Ornaments :

It is puzzling that the males and females, represented in art, that is, either in painting, stone sculpture, or terracotta, are dressed scantily. This is so especially in the case of the females. Any foreign visitor who is unaware of the subtleties of Indian art would naturally comment that

302. *Kamasutra of Vatsyayana*, 1-3-16, 1961, *op. cit.*

303. Majumdar R.C., 1960, *op. cit.*, p. 104

304. *Ibid.* pp. 299-230

the Indian women of the bygone days never knew an upper garment. But the ornamentation is so profuse as to cover up the lacunae in dress. We have a variety of ornaments worn from head to foot. Our main sources for the study of ornaments of the early historical period are the antiquities excavated and ornaments represented in the sculptures of stone and terracotta.

Mastaka Sobhana :

The head ornaments (*mastaka sobhana*) consist of the ornaments or jewels of the forehead, at the parting of the hair and a decorative piece over the hair knot. We do not have any of the above ornaments from the excavation, but in the terracotta figurines from Peddabankur we find a *lalatika* or crest jewel and a fillet across the forehead. The hair is made into a top knot.

Makarika :

The Mother Goddess, made of terracotta, has a fan-shaped hairdress made into a *makarika* (mythical crocodile) top-knot. The *makarika* is very common among the terracottas found at Yeleswaram and Nagarjunakonda.

Chandrakarnika :

There is a large number of ear ornaments made of terracotta, glass, rock-crystal, lead and copper. Mainly there are three varieties; one is crescentic or *chandrakarnika*. This variety is entirely made of terracotta. The ornament is thick in the middle and the two rounded horns taper upwards to form a circle with a small gap at the top for introduction into the ear lobe. It is decorated with multiple grooves on both the horns (Plate 86-1st row).

Chakrakundalas (Plate 86-2nd row) :

The second type is a pulley with concave sides and a deep groove around the periphery. Some of these have transverse perforations. The pulleys, made of rock-crystal, have flat lateral sides (without perforation) and a groove around the periphery. One glass pulley has an encrustation of some powdery substance of multiple colours.

There are also good number of terracotta pulley-type ornaments with concentric grooves on the lateral sides and transverse perforation.

There are two types of ear ornaments in lead; one is a reel of spiralled strips, the other is a solid mass in the shape of pulley. Of the solid type, one is pulley-shaped and other is reel-shaped with bulbs at the lateral sides. Both have transverse perforations. The pulley is

decorated with a circular band around the perforation and at the periphery.

Similar is the case with the copper ornaments; one is a spiralled strip and the other is a hollow one. The spirals appear like incised concentric lines at the lateral sides. Both have transverse perforation.

Among the terracotta objects one is pulley-shaped and the other is reel with bulbous studs at both the ends. The pulley is decorated with concentric lines on both the lateral sides. Some of the studs are black slipped and highly polished. Analogies of reels or pulleys with concentric circles are found at Hastinapur.³⁰⁵

Pendants :

The pendants are mostly made of terracotta and are simply conical masses with a transverse perforation at the tapering end.

Nose Ornament :

There is a beautiful half moon-shaped terracotta pendant decorated along the margin with a beaded line between marginal band, on both sides. But a pendant needs no dorsal decoration. It may possibly be a nose ornament. The nose rings or toe rings are conspicuously absent in the early period in the literature or sculpture.³⁰⁶

Necklaces :

Kautilya³⁰⁷ mentions several varieties of pearl necklaces such as *sirshaka*, *upasirshaka*, *prakandaka*, *avaghataka* and *taralaprati-bandha*. When all the strings making up a necklace or of *sirshaka* pattern, it is called a pure necklace or *suddhahara*, that which contains a gem in the centre is called *ardhamanavaka* and that which contains slab-like gems as is *triphalaka*. When it has five slab-like gems in the centre, it is known *panchaphalaka*.

Out of the many hundreds of beads found at Peddabankur or Dhulikatta, there is not even a single pearl bead. Apparently pearl being a very fragile and perishable material the absence of it can be understood. The other beads consisted of carnelian, both etched and plain, rock crystal, blood-stone, beryl, lapis lazuli, amethyst, agate, jasper, glass and terracotta. There are also beads of shell, horn and other of pearl. The most numerous of all are of terracotta.

305. Lal B.B., 1954-55, *op.cit.* pl., XLIX, No. 6 & 7

306. Alekar A.S., 1938; Reprint 1973, *The Position of Women in Hindu Civilization* p.301

307. Shama Sastry R., 1915, *op.cit.*

Among the metal beads are included the gold and silver. The gold beads are made of thin foils of the metal which included tabloid and octagonal shapes. The thin foil beads are sometimes decorated with radiating lines around the string hole and enclosed by dotted oblique bands. The periphery was stamped with gadroons. The beads are very thin and it is noticed that a cylindrical glass bead was introduced into the hollow space against the perforations so that the bead would not be squeezed together while threading.

Peddabankur excavation has yielded a complete necklace of 43 beads of which 24 are amethyst, 7 lapis lazuli, 2 gold and one jasper.

The excavation at Kotilinga in the Karimnagar District, yielded a necklace of beads shaped like Sun disc with radiating lines, Nandipada, Frog, Tortoise and gadrooned cylinders. The beads are made of thin foils of gold made in two separate facets and pressed together. In the early literature particularly Buddhist and Jaina, the frog represents the planet Jupiter or Brihaspati, the tortoise for Saturn or Sani. As such the necklace may be known as "Grahamala".

Bangles :

Bangles are worn in the Vedic age¹⁰⁸ both on hands and feet by men and women alike. The materials used for bangles during the early historical period, are of five varieties *viz.*, copper, lead, glass, shell and terracotta. Strangely no bangle made of either gold or silver was noticed. It can only be explained by the dearth of precious metals. The lead bangle from Peddabankur is decorated with peripheral serrations. It is only 4 cm. in diameter. There is a very large collection of shell bangles. Practically all the bangles are plain without any sort of decoration.

The terracotta bangles are broad and sometimes decorated with a beaded design between marginal bands. The glass bangles are very crude and mostly made of opaque blue glass.

Rings :

The materials used for rings are copper, iron and shell. No gold or silver rings are noticed. Among the types found are the spiral and bezel-shaped. The spiral rings outnumber the bezel types. The rings with bezels are sometimes inscribed and designed. One ring is inscribed

with Brahmi letters 'ARALASA'. These four letters are at the four cardinal points of the circular bezel. One ring has a double-grooved incised design in the shape of an eye which is probably an amulet type. Double-grooved eye designs are sometimes incised over the toes of *Buddhapadas*, as noticed at Kesanapalli.³⁰⁹

Waistlet :

Girdles or *mekhala* are worn by both men and women primarily to keep the lower garment in proper position and secondly as an ornament. The fashion of wearing the girdle is as old as the times of Mahabharata³¹⁰ in which it is described as '*hiramayi mekhala*' (golden girdle). According to Natya Sastra, *rasan*³¹¹ means a girdle having 16 strands. Girdles are made of pearls, beads and strips of metallic plates. Their ends are clasped together at the navel.

In Bharhut sculptures, we notice girdles consisting of four³¹² to ten³¹³ strings or series.

In Nagarjunakonda³¹⁴ sculptures, there is an excellent example of the *mekhala* with circular clasps over the waists of two ladies, depicting *Mahandhata Jataka*. In the *ayaka* slabs at Dhulikatta there are two female devotees on either side of Naga Muchlinda, each having a beaded *mekhala* over a broad strap. The beads appear tabloid and lugged at both ends. Peddabankur excavation yielded a *mekhala* of silver hollow beads, tabloid in shape and lugged at both ends. There are twenty one such beads made of very thin silver plate each with a diameter of 2.3 cm. and 3.5 cm. long (Plate 84 bottom row).

Anklets :

The anklets or *manjeera* resembled a coiled circlet, in the earlier period. In the Ramayana (Sundara, 15-46) the anklets have been described as producing sound. For that effect small metallic rattles are usually attached to the anklet at the lower end. Such an anklet is known as *kinkini*, *manjeera*, or *nupura*. There are two types of anklets: one is spiralled and the other is a simple ring with or without clasp. A female votary, found in the *ayaka* slabs of Dhulikatta, represented by both the types, the spirals above and a massive ring below. From Peddabankur we have a simple copper wire with a clasp.

309. Khan A.W., 1969, *op.cit.*, pl.5

310. Mahabharata, Vanaparva 112.4.

311. Cited by Shastri A.M., 1975, *Kuttanimita of Damodara Gupta*, p.145

312. Barua B., 1934, *op.cit.*, Fig.24, 9 C.

313. Cunningham A., 1869, *Bharhut*, pl.51, Fig. 2

314. Krishna Murthy, K., 1977, *op. cit.*, p.97

FOOD HABITS

Agriculture, hunting and domestication of animals were the main basis of subsistence. Agriculture was attested to by the representation of plough on terracotta seals and the other objects found in the excavations, such as plough-shares, sickles, etc. If self-preservation was the main pre-occupation during the proto-historic period, agriculture was the main criterion of the settlement pattern during the early historical period. While the towns were inhabited by the commercial classes, the villages were mainly occupied by the agriculturists and artisans. As already stated, most of the settlements are found in the midst of black cotton arable plains. It appears irrigation was mostly dependent upon tanks. The already existing tanks must have been renovated while many new tanks were constructed. There must have been both wet and dry cultivations. Wet lands in the low-lying areas must have yielded rice while the dry yielded mainly ragi, jowar, etc.

The hunting of wild animals and the killing of domesticated species supplemented their food requirements. The domesticated animals included cattle, buffalo, sheep, goat, horse, dog, swine, etc. Rodents were also captured for food. The bones of the domesticated animals bear chopping marks caused by a sharp heavy object. Sometimes the cuts found on the bones are superficial which were intended to dislodge or peel off the adhering flesh. The rough edges of the cuts indicate that they were made by a heavy sharp stone-like implement. The food habits of the Peddabankur³¹⁵ dwellers are amply demonstrated by a large collection of bones from the excavations. The osteological study revealed that the cattle flesh mainly formed part of their diet. Sometimes the bones appear to be charred.

The excavations revealed an entire skeleton of a cow. From the position in which the bones were lying, it was inferred by Alur that all of them pertain to the same animal, which may be of 2 to 2½ years old. It is a case of definite burial as indicated by an earthen pot, noticed towards its head. No attempt has been made to deflesh the body.

The existence of a buffalo is rarely proved in other excavations, because, the bones of both the cow and buffalo cannot be easily differentiated. The excavation at Peddabankur yielded an entire skull

315. Alur K.R., 1974, *Animal Remains from Peddabankur* unpublished report.

of a buffalo. The horns, which help in the easy identification of the animal are available. The study of animal bones from the early historical levels at Yeleswaram³¹⁶ reveals the presence of bison, sheep, goat, swine, fowl, rat, tortoise, fish and crocodile. As the historical site is situated on the banks of river Krishna, at which crocodiles were commonly seen, it is not known whether the flesh of the crocodile was also consumed along with those of the other species mentioned above.

316. Alur K R., 1972, *Animal Remains from Yeleswaram* - unpublished

RELIGION

The evidences regarding the Brahmanical religion are not quite explicit for reconstructing a comprehensive account of the religious conditions during the early historical period. The religious beliefs still centred round the local primitive forms of worship and rituals. The early inhabitants believed in village gods and goddesses, tree and serpent cults and probably practised the worship of spirit. The common people had not yet fully imbibed the religion of the Puranas centering round the worship of Vishnu and His emanations or of Siva in his Linga form. The main sources for the investigation into religious conditions are the metal or terracotta figurines.

The Mother Goddess represented by a bronze sculpture found in the early levels at Dhulikatta, is of the *ankadhatri* type. The Goddess is seated on a pedestal with legs dangling and holding a baby in the left hand, while the right hand resting on her knee. On stratigraphical grounds the figure may be dated to 2-3rd century B.C. The figure of a mother and the child usually represents the fertility cult.

We find similar figures from Yeleswaram in the Ikshvaku levels. There is a figure of the mother and child also from Yeleswaram with a conical cap-like head-dress. She is flanked by a humped bull. Siva, sometimes known as 'Bablu'³¹⁷ or the bull, is also the sustainer of food (*Annamam pathaye*). In the rock brusings at Mudumala we find the early form of *nandipada*, flanked by a humped bull and a Mother Goddess with the hands upraised. It is quite probable that the bull which ploughed the field to produce rice may be one of the earlier forms of the Puranic Siva.

We have at Peddabankur two types of Mother Goddess—one with the upraised hands and the other holding a bunch of fruits. A parrot is nudging her breasts. The third type comes from Dhulikatta, where the Goddess holds her two prominent breasts with her hands from below.

In one of the terracotta sealings an incised figure of plough was flanked by a solar disc and the Ujjain symbol. It is possible that the

317. Sivaramamurthy C., 1976, *Saturudriya Vibhuti of Siva's Iconography*, New Delhi, p.46

plough which makes furrows in the field was also worshipped like the bull which draws it. The furrow made by the plough sometimes is known as 'Sita' in Rigveda.³¹⁸ which is later deified in the puranas.

There is also a terracotta sealing of Gajalakshmi datable to around 1st century B.C. (Plate 104). The goddess is shown standing naked in a lotus pool and being bathed by two elephants with pails in the trunks. The elephants are standing over the lotus leaves supported by long stalks. Goddess Lakshmi or Sri is probably the earliest among the Indian deities to be represented in clay. She appears on the Bharhut railing with the label 'Sirima Devata'³¹⁹. She is represented in a variety of forms at Bharhut, Sanchi, Bodhgaya, Manmoda, Nandasur³²⁰, etc.

Peddabankur and Dhulikatta excavations have also recorded a good number of archaic terracottas of human and animal figurines. The Mother Goddesses are hand-made with the hands depicted like pointed masses, and protruded and pointed breasts. The attenuated waist line broadens towards the hip. The face is a featureless mass sometimes with a halo. Exactly similar figures are found at Dhulikatta, Nelakondapalli, Yeleswaram, etc. The figures sometimes come from far-off places but appear to have been cast on the same mould. Coomaraswamy³²¹ wrote, "A nude and steatopygous type occurs throughout the most ancient world, from the central Europe in the Neolithic times to the Gangetic valley." Quoting Coltz he said, "She is the great mother and it is she who makes all nature bring forth. All the existing things are emanations from Her. She is 'Madonna', carrying the holy child or watching over him. She is the mother of men and animals too. She even makes the plants grow by her universal fecundity, perpetuating the vegetative force of which she is the fountain-head."

The worship of serpent (Naga cult) is attested by a figure of a snake made of iron from Peddabankur. The figure has two perforations at the head and one below to represent the two eyes and its mouth. The worship of Naga is as old as the Vedic times. In Atharvaveda³²² the serpents are addressed as powerful supernatural beings. One of the principal Nagas is known as Takshaka.³²³ 'DHRITARASHTRA was the chief of Nagas also called 'Airavata' who was the son of Iravan'.

318. Vedic Index II, *op.cit.*, p.451

319. Barua B., 1934, Book II, *op.cit.*, pl. XXIII. 2 (scene 74), p.75

320. Gupta P.L., 1972, *op. cit.*, p.77

321. Cited by Gupta P.L., 1972, *op.cit.*, p. 74

322. Atharvaveda, Book-III, XXVI FN. by Griffith R.T., 1894

323. *Ibid.*, Book-VIII, X.29

The early Satavahana kings were followers of the Vedic religion. The Naneghat³²⁴ inscription records a number of sacrifices by Gautami-putra Satakarni. His gifts of cows, elephants and money as *dakshina* to the Brahmins prove the great hold the Vedic rituals had on their courts and entourage. The mention of various deities,³²⁵ such as Dhamma, Ida (Indra), Sankarshana, Vasudeva, Chandra and the four Lokapalas viz. Yama, Varuna, Kubera and Vasava (Indra) show that the Deccan was passing through a transitional stage from the Vedic to Puranic pantheon. It is interesting to note that the name of Rudra or Siva is conspicuously absent. The invocation to Dhamma in precedence to Ida, Sankarshana, etc. is a clear evidence of Buddhist leanings and the equation of the same with the Brahmanical faith. Saivism was still a sect taking shape. By the time of Gatha Saptasati,³²⁶ Pasupathi, Gauri Rudra and Parvathi, Lakshmi and Narayana have arrived on the scene and preceded all others.

Buddhism :

The stupas at Dhulikatta, Phanigiri, Gajulabanda and Thirmalagiri may help us to reconstruct the history of Buddhism in Karimnagar region from circa 4-3rd century B.C. Andhra Desa became a strong hold of Buddhism; probably it embraced Buddhism long before the time of Asoka. For the same reason, Andhra was not mentioned among the countries to which monks were sent by Tissa, after the Third Council.³²⁷

The objects of worship of the Buddhists are the stupas, situated at the above places. The stupa at Dhulikatta, consisted of a solid drum of bricks and capped by an *anda*, which was raised with alternating courses of bricks and mortar, imparting a hemispherical shape at the top. There is a rectangular brick cell at the top, which must have served as a *harmika* and in which is installed, in the recent years, an incised figure of Seshasayi. The local people have completely lost the memory of the existence of a Buddhist stupa, which in the course of time, became popular as the Ranganayaka temple. Some fragments of limestone carvings, littered around the place, gave us an indication of the possible existence of the stupa and the excavation conducted, later at the spot, confirmed our conjecture. The *chatra* which must have crowned the

324. *Epigraphia Indica*, Vol. VIII, 1905-06, "The Inscription in the Caves at Nasik", No. 2, pp. 60-65

325. Luder's List, 1908-10, No. 1112, *Epigraphia Indica*, Vol. 10, A.P., p. 121

326. *Gatha Saptasati* by Hala, 1889, preface; p. 9, opening and closing verses, Gathas 455, 372, 403 Kavyamala Series, Nirnayasagar Press, Bombay.

327. Gopalachari K., 1976, *op.cit.* p. 120

harmika was noticed in fragments. A relic casket of sandstone, inscribed in Brahmi characters over the rim, was recovered, but due to the weathering of the stone, the inscribed label is quite illegible. Unfortunately the contents of the casket were already ransacked long before our excavation.

The stupa has seen two phases: in the earlier phase the drum was a massive brick structure, enclosed by a square platform which served both as a buttress and a *pradakshinapatha*. In the second phase, another drum was raised around the original one with a gap of 12 m, and filled in with brickbats and mortar. The second phase saw the enlargement of the drum, construction of the *ayaka* platforms and decoration of the surface of the drum, with carved slabs of limestone. The themes in the carvings over the slabs included reliefs of stupas, Muchilinda Naga worship of *Dharmachakra*, *Mahabhinshkramana*, etc. Sometimes the stupa is shown entwined by various nagas, below which is the worship of *Dharmachakra*. The *chakra* has a prominent hub in the middle. It stands over a high pedestal and is flanked by the devotees, one of whom holding his hands in *anjali*. At another place, the *Dharmachakra* is shown with 24 spokes, radiating from a central hub to a broad tyre. The wheel is held in position at the base with a rounded top and flanked by two lions. The base portion of some pilasters have carvings of horses, the shaft with *ardha-padma* and *padmas*, the capital with lions seated in opposite directions.

One of the slabs carved with a Brahmi inscription as '*Gahapatino pathalasa mathuya danam*.' In the other slab the inscription reads as '*Gahapatino Pathalasa Mathari Puthasa Ayago Danam*'.

Gahapati was sometimes mentioned as a merchant. According to Senart³²⁸, the use of *gahapati* (*grahapati*) in Nasik Cave No. 6 "favours the opinion that *gahapati* is in the Buddhist language specially restricted to people of various castes who are included in the large class of *Vaisyas*". In the *Sapta Satakam* we have references to the philandering of the *gahapati* with a girl of the *halika* sect.³²⁹ In the Amaravati inscriptions many a *gahapati* and merchant is mentioned; yet we have only one instance of the father of a *vaniya* bearing the title *gahapati*.³³⁰

Gahapati was sometimes known as the chief of *vratyas* and also that of the *vratyas* in the *Brahmanas*. The outfit of the *gahapati*³³¹ is

328. Cited by Gopalachari K., 1976, *op.cit.*, p.116

329. Luder's List II, 7, VI, 100, *op.cit.*

330. Gopalachari K., 1976, *op.cit.*, p. 116

331. Banerjee A.C., 1963, *Studies in the Brahmanas*, pp. 156-159

described as 'a turban,' a goad, a *jyahnod*, a *vipatha* covered with goads, a black garment, two skins, black and white, a silver *nishka* (necklace). *Jyahnod* may mean a bow, *vipatha*, a *ratha* driven by two animals, horses or mules. *Nishka* may be a gold or silver necklace of coins. Banerjee suggested that it was obvious that the *gahapati* with such an outfit was like a warrior chief, apart from his other duties he had to participate in and supervise over ritual performances. In this manner he may be compared with the Brahmin *purohita*.

GAMES AND AMUSEMENTS

The people relaxed themselves from the drudgery of routine chores by indulging themselves in various sports and pastimes, which included indoor and outdoor games and other recreations.

Games of dice :

The game of dice was a very ancient pastime. From the earliest known prehistoric times, it is known as *akshadyuta*. As the dice are marked with circles and pellets in the shape of an eye, it is likely the game assumed the above name. It may be similar to the present day *chappara*. It was participated by both women and men. The game board (*dyuta phalaka*) is represented in many sculptures of the early historical periods, such as Bharhut, Bodhgaya, Nagarjunakonda, etc.

From Peddabankur we have two varieties of dice: one is an oblong prism and the other is a square cubical. Majority of the dice are oblong. Each consists of four edges marked with circles with a middle dot. The dice are made of bone and horn.

The other favourite pastime was hunting which is mentioned as *lubdhayoga* by Panini³³². It is also known as *akhetaka* or *mrgaya*. The weapons employed for hunting mainly consisted of bow and arrow. Sometimes hunting dogs (*visva-kadru*) accompanied the party for frightening away the animals out of their hideouts. *Lubdhayoga* may possibly mean hunting as an occupation and *mrgaya* is a sport. The various merits and demerits of hunting have been discussed by Kautilya.³³³ The animals chased included deer, hare, boar³³⁴, bison, fowl, tortoise,³³⁵ etc. We find in the Bharhut sculptures a set of boars being attacked by with a short spear and two hounds pouncing³³⁶ upon it. Hunting with long spears was common from the proto-historic period.

Taming of Birds :

In the terracotta figurines, we find many figurines of birds such as sparrow, *kokila* (Indian cuckoo), cock, parrot, etc. which were domes-

332. *Ashtadhyayi* of Panini V, 4.126, *op.cit.*

333. Sharma Sastry R., 1915, *op.cit.* 8.3.50

334. Alur K.R., 1972, 1974, *op.cit.*

335. Alur K.R., 1972, *op.cit.*

336. Barua B., 1934, *op.cit.*, pl.29, fig.22, 23

ticated in the early periods to convey messages between lovers. In one of the figurines of Mother Goddess, made of kaolin, a parrot is on the right arm of the Goddess. In a panel of a railing pillar³³⁷ at Mathura, a woman is seen with a parrot. In the words of Agrawala, "the pillar shows a female figure, dancing in one of her love ecstasies, after she has received the message of love conveyed to her by a parrot which is the vehicle of the God of Love". The bird is perched on her girdle and nibbles at the binding knot. Peacock was also possibly domesticated as represented in an amulet plaque from Dhulikatta.

Animal fights :

Animal fights were popular from a very ancient period. These included fights of ram, cock, bull, etc. The figures of ram are of very common occurrence in terracotta. Vatsyayana³³⁸ mentions the quail-fight (partridge), cock-fight, and ram-fight, the talk of parrots and mainas and dramatic performances as pretexts³³⁹ to bring a client to the residence of a courtesan. It appears that buffalo and elephant fights were also common.

Games of Women :

The games for women are mostly of indoor variety which included the game with the ball (*kanduka krida*). This game is very popular mainly intended for physical exercise³⁴⁰. The girls who liked the game played it so much till they were completely exhausted and their palms became red and swollen³⁴¹. It is not clear as to the material with which the balls were made of. It is possible that balls of wood, wool or flowers might have been made use of. In the Karimnagar region the practice of playing with balls of leaves of various species is in vogue. The girls collect leaves and make them into balls and secure the ball by tying with strings. The other method is to fill-up a small sack of cloth with seeds of tamarind (*Tamarindus indica*) and custard apple (*Anona reticulata*) and then close its mouth tightly. The other type is a dried fruit of *kapitha* or wood apple (*Feronia elephantum*) or *bilva* (bel or *Aegle marmelos*) and custard apple (*Anona squamosa*). The girls used to

337. Agrawala V.C., *A Short Guide to the Archaeological Section of the Provincial Museums, Lucknow*, pl.X, fig.12

338. *Kamasutras* of Vatsyayana VI.1.25, 1961, *op.cit.*

339. *Manasollasa* ; cited by Louis Renou ; translated from French by Philip Spratt, *The Civilisation of Ancient India*, second edition - 1959, Calcutta, p.165

340. Altekar A.S., 1938, Reprint-1973, *op.cit.*, p.15

341. Shastri A.M., 1975, *op.cit.*, p.154

play a number of other indoor games such as hide-and-seek and run-and-catch which are graphically described in the Kamasutra³⁴². The game of hop-sotch appears to be also popular as attested by a number of rounded potsherds in the excavations. Similar pottery discs are commonly found in almost all the early historical and proto-historic sites. Peddabankur excavation has recorded a good number of such pottery discs.

342. Kamasutras of Vatsyayana III. 3, 1961, *op. cit.*

BURIAL PRACTICES

We do not have any evidence regarding the burial practices of the people during the early historical period. The excavations at Peddabankur and Dhulikatta have not yielded any human remains in and around the sites. There are two possibilities, *viz.* they might have carried their dead bodies to far off places for disposal at a common burial-ground or have cremated the dead so that even a semblance of the human remains could not be left. Even the charred bones from the pyre were collected to be immersed in the waters of the rivers especially at the places of confluence.

Some Megalithic burials consisted of post-cremation charred bones, besides post-excarnated remains. The burials consisting of post cremation remains are considered to be later than the excarnated ones. In these we notice a transition from excarnation to cremation. After the Aryanisation it was succeeded by the only practice of cremation and immersion of the ashes in the rivers. This is the nature of the evidence from some of the excavated sites, where the Megalithic and later culture⁶ are noticed sequentially. The characteristic black and red ware pottery and other antiquarian remains have continued to occur even during the late historical levels, without much variation. The black and red ware pottery occurs even in the Ikshvaku levels, dated to 3-4th century A.D. There is no perceptible gap anywhere in the cultural evolution, but the same may not be the case with burial practices. There is no evidence, whatsoever, that the Megalithism lingered on along with the occurrence of black and red ware.

An extensive cremation ground of the Ikshavaku period at Nagarjunakonda is a convincing proof that the people had forgotten Megalithism long back. Even some *chayastambhas* or memorial pillars, eulogising the merits of the dead, were erected at the cremation ground. Here we see the end of Megalithism and the beginning of the cult of hero-stones. Some of the hero-stones were carved with the figures of the dead, such as Sirichantamula, the Ikshvaku king, with an epitaph containing a long account of the great deeds of the dead. Megalithism must have continued, not among the general public of that age; it retreated to the hilly regions or forests where indeed the primitive rites still continued among some tribal people. The present day practice in vogue in the Karimnagar region is to collect post-cremation bones representing different limbs of the dead from the funeral pyre, and then keep them in a pot to

be buried elsewhere. A small memorial structure is then raised over the burial. The spot where the urn is deposited is known as *Charama-stala*.

Chronology :

The antiquarian remains and the structural finds noticed at Peddabankur pertain mainly to two phases, viz. the pre-Satavahana and the Satavahana. Some of the objects, particularly the iron and the pottery, with a profuse mixture of black and red and tan wares, may go with the later phases of the Megalithic period. The elliptical structures, found in the earliest stratum without any use of brick, may also correspond with the same phase. As discussed above, the signet garnet seal, found in Peddabankur excavation, is inscribed with three Brahmi letters as "Ka Mu Sa" in the Mauryan characters. Further, it is noticed that the silver punch-marked coins were found in two hoards also at Peddabankur, one consisting of 168 coins and the other 30 coins. Previously about 480 punch-marked silver coins coming from Karimnagar region have been studied by P. L. Gupta, who classified them as belonging to four periods: Period-I was equated with that of the big Bheer Mound Hoard. The coins of Period-II were dated to the Pre-Mauryan period and regarding the coins of Period-III he suggested that this group was the earliest of the series. Regarding the coins of Period-IV he has no date to offer. The punch-marked silver coins were current even during the Satavahana period. Some rectangular types were found in association with the Satavahana coins at Peddabankur but the above mentioned two hoards definitely came from the pre-Satavahana levels.

At Dhulikatta, the Buddhist stupa was decorated with a number of *ayaka* slabs, some of which bear legends in Brahmi, datable to circa 2nd century B.C. The drum of the stupa has seen two phases of construction: in the 1st phase the circular solid drum was constructed and provided with a square brick platform; in the second phase the drum of the stupa was much enlarged by raising another drum around the first and the second drum was decorated with the above said *ayaka* slabs, which may definitely be dated to 2nd century B.C. In that case the earlier drum must have been constructed during the 3rd century B.C.

Recently we have received Radio-carbon results of two charcoal samples from Dhulikatta³⁴³ which gave dates as (a) 2210 ± 100 years. Before Present, (b) 1965 ± 90 years B.P. By the first date the first phase

343. Results of Birbal Sahni Institute of Palaeobotany

(a) DKT/1/77 S.No.6 B.S.117 1910 ± 95 y B.P.

(b) DKT/2/77 S.No.7 B.S.118 2210 ± 100 y B.P.

(c) DKT/3/77 S.No.8 B.S.119 1965 ± 90 y B.P.

of the constructional activity at Dhulikatta both of the Buddhist stupa and the fortified mound may be taken back to around 3rd-4th centuries B.C.

We have also received two Carbon-14 determinations: one from the Birbal Sahni Institute and the other from Tata Institute of Fundamental Research, of the charcoal samples collected from the layers 2 and 3 at Peddabankur. Both the determinations give a date to the first century A.D., a date which could be easily arrived at even on the basis of the Roman coins of Augustus and Tiberius.

Summing-up these evidences it is possible to give a date range from circa 3rd century B.C. to 2nd century A.D.

RESUME

We have now completed a detailed study of the various cultural phases in the Karimnagar region uptill the end of the Satavahana period. We may now have a brief recollection of the same. We have already seen that the regions studded with a good number of prehistoric sites. Some of the sites in the adjoining region have also been discussed for a comparative study. The early stone age site, explored by the author at Amarabad in Mahboobnagar district, is situated at the foot-hills of a range of hills to the north-west of the village. The section cutting across the bank of a nullah known as Katvavagu consists of the basal weathered granite rock, upon which is a deposit of shingle associated with the Acheulian hand-axes, cleavers, choppers, and flakes. The shingle deposit is overlain by well cemented weathered laterite, which is granular in composition. This is again covered by red alluvium deposit to a thickness of forty to sixty centimetres.

Typologically, the tools belong to the early and late Acheulian stages. The collection included excellent specimens of hand-axes, cleavers, chopping tools, scrapers, points and flakes, etc. The cleaver constituted more than 50 per cent of the total collection but the hand-axes are only 18 per cent. Small axes or biconvex points and scrapers accounted for three per cent and the rest are flakes or worked flakes.

In Karimnagar region, hand-axes and flake scrapers were reported by Munn at Allur and Jangoan villages in Peddapalli taluk. In association with these artifacts, he also noticed a few fossilised bones of *Bos Frontalis* and fragment of an antler of *Cervus*. From Adilabad, Haimendorf collected a large number of scrapers and blades. Nandikeswara Rao of the Geological Survey of India reported the occurrence of early stone age tools in the Pranahita valley of Adilabad district. During the recent years Thakur Raja Ram Singh discovered many early and middle stone age sites near Godavari Khani, Ramagundam, Medipalli and Malkapur, all in Peddapalli taluk. The late stone age sites were discovered at Godavari Khani and Ramagundam in Peddapalli taluk, near Pochera waterfalls and Chittialapalli on river Suvarna in Adilabad district. Other sites in Peddapalli taluk included Bugga near the foot-hills of Takkellapalli range, Devunipalli, Rangapur, Gopayyapalli, etc. The most prolific among the late stone age sites discovered by the author is the site near Gourigundam which yielded a large number of cores, blades, blade tools, and waste flakes. The cores found here are

three kinds, flat, pointed and obliquely based. The tools are blunted backs. A trench (3x3 m.) cut to a depth of 12 cm. yielded the following material: Cores-160, blades and primary chips-2813, tools-416 and waste flakes - 579- totalling 3,968 artefacts in all.

The evidence of the Neolithic sites in Andhra Pradesh was first discovered by Robert Bruce Foote in the year 1876 by the discovery of a stone adze near Vadamani in the Guntur district. After this discovery, over 50 sites, geographically situated in the present districts of Hyderabad, Krishna, Guntur, Nellore, Kurnool, Cuddapah and Anantapur came to light. In the year 1976, the author excavated a Neolithic site at Polakonda in the Jangoan taluk of Warangal district under the auspices of the Department of Archaeology and Museums, Government of Andhra Pradesh. Later in 1977 a minor excavation was conducted by N. R. V. Prasad at Budigapalli, which is a Neolithic-chalcolithic site. Many other sites were discovered and explored by the author in the region. They include Togarrai, Kadambapur, Peddabankur, Budigapalli, Devaruppala, Polakonda, etc. At Togarrai, a prolific Neolithic factory site was discovered over a granitic outcrop. The collection consisted of a large number of unfinished tools and waste flakes, besides many finished axes and adzes. The tools of the Neolithic man invariably made on dolerite or trap rock, consisted of axes, adzes, picks, spheroid rubbers, ring-stones, and querns, besides Microlithic blades. Among the axes, there is a wide variety of forms, namely tools with elliptical, lenticular, rhomboidal, rectangular and triangular cross-sections. The adzes are mainly of three types *viz.* plano-convex, triangular and rectangular. There is another specialised form of tool with plano-convex section, which is commonly known as shoe-last-celt. Peddabankur excavation recorded a very fine specimen of such a tool.

In spite of the presence of a very large number of Neolithic tools in the Karimnagar region, pottery appears to be scarce. Only the excavation at Polakonda gave us an idea of the Neolithic pottery in this region. It generally consisted of crude and coarse hand-made wares, along with a few burnished types. The pottery in general was well-burnt to grey, dull-brown or black colour. At Polakonda we have the evidence of a kiln in which the Neolithic pottery was baked. The kiln consisted of thick walls of clay in which the pots were kept and burnt by the application of indirect heat. The Neolithic ceramic assemblage noticed at Polakonda consisted of grey, pale grey, blotchy brown, black burnished and matt-red wares. For most of the specimens, the clay was well-levigated. The types included a huge jar with an elongated neck, and a featureless everted rim and straight sides. On the shoulder there is a thick horizontal applique band decorated with finger-tipped design. A distinct shape is a channel-spouted bowl, which was designated by Foote

as a milk bowl. There is also a huge jar with featureless splayed-out rim, concave neck and globular profile. On the shoulder, it has a thin applique band which terminates in curved ends in the opposite direction.

The physiographical and geological features have considerably contributed to the establishment of Neolithic settlements in the Karimnagar region. The Neolithic folk chose open terraces at the foot of the hills, where the natural rock shelters are available. However, they sometimes selected black soil plains and often lived on the river banks, as noticed at Kadambapur, Togarrai, Polakonda, etc. The post-holes, noticed in some excavations, indicate the nature of hutments. They are circular in plan and made of wattle, whose roofs were possibly covered with some perishable material. The wood selected for the posts to raise the houses was of acacia or dalbergia species. Some of the rock-shelters, noticed at Budigapalli and Kadambapur in the vicinity of the Neolithic settlements, must have been utilised by them.

The economic life of the Neolithic man consisted of a combination of the agriculture, animal-husbandry and hunting. They depended on, besides cultivation, hunting and fishing and whatever naturally available such as the fruits, vegetables, edible tubers, etc. However the general occurrence of domestic implements such as querns, grinders, etc., may suggest the limited practice of agriculture. The evidence of grain, such as horse-gram (*Dolichos biflorus*), green gram (*Phaseolus madiatus*) and ragi (*Eleusine cora cana africana*), from Paiyampalli in Tamilnadu and other places, which are not far removed from this region either geographically or culturally indicates that similar grains might have been grown and procured during the Neolithic period here also.

The works of art of the Neolithic people have survived in the form of rock paintings, rock brusings, pottery decorations and terracotta figurines. The author recently chanced upon some rock paintings, situated at Regonda, Budigapalli, Kokapeta, Mudumala and Ketavaram in various districts of Andhra Pradesh.

As in other places, the Neolithic period was succeeded by the Megalithic. The Megalithic problem has previously been studied by some scholars like Wakefield, Hunt, Taylor, etc. During the recent years the Department of Archaeology and Museums conducted excavations at various Megalithic sites such as Pochampad, Yeleswaram, Kadambapur, Agiripalli, Jonnavada, Peddamarur, Uppalapadu and Chagatur. In course of the exploration, the author noticed an extensive complex of dolmens at Amarabad in the Mahboobnagar district.

There are about twenty to twenty five of them with an intervening space of upto ten to fifteen metres. The dolmens were constructed of dry

masonry walls by piling up flat-cut slabs. A roof was made of a roughly rectangular or circular granite slab with a thickness of 15 to 20 cm. The height of the wall between the floor, which is the natural bed rock, and the roof slab never exceeded one metre.

At Mudumala, a large number of stone circles and stone alignments were reported. These consisted of stone blocks, about 4 to 4.5 m. in height. There are 7 such rows covering an approximate area of 75 sq. m. On the south-west of the village there are some rock brusings incised over huge boulders.

A few cist burials were excavated at Agiripalli in the Krishna district, under the supervision of the author. Some of the cists consisted of calcined bones and a few miniature pots of black and red ware. One cist burial was found at the floor level of another cist which contained 4 skulls and other bones, such as femur, tibia, etc. Slightly away from the cist, a few sarcophagi were also exposed. It is interesting to notice various burial practices such as stone cist, terracotta sarcophagus and burial urns at the same place. It is also noticed that both the cremation and exarnation were practised, but stratigraphically, the exarnation was earlier.

In the Karimnagar region, a few Megalithic burials have been excavated at Janampet, Dongatogu, Polichetticherugadda, etc. In the recent years, the Department of Archaeology, under the supervision of the author conducted excavations at an extensive burial site, situated near a hamlet known as Kadambapur in the Peddapalli taluk of Karimnagar district. Five burials have been exposed here, four of them being pit-circles and one a port-hole cist. In one of the burials, a skeleton with complete articulation was noticed in the middle of the pit. On both the flanks of the skull, there were two spiralled wire ear-rings. A 28 cm. dagger was found near the collar bone. Interestingly enough, the legs were found amputated at the ankles. The truncated parts were placed over two stones. Two conch shells with their bottoms cut out and placed near the hands indicate that they were used as bangles.

The Megalithic burials yielded a large variety of antiquities such as pottery, iron objects, ornaments like beads of terracotta, semi-precious stones, gold, copper etc. Some grains of paddy and other cereals were also found. The most important among the burial offerings is the pottery, which consisted mainly of the black and red, the black polished, red polished and coarse red wares. The Megalithic pottery types have been classified into two groups, viz. the coarse and unpolished receptacles like the burial urns, the sarcophagi, etc. and the well-fired often slipped and finely polished smaller vessels.

The rare types in the black and red ware included chalices and bowls on hollow pedestals the latter with or without slits. Some rare types from the Megalithic burials in the Karimnagar region included deep bowls, all black ware conical lids, funnel-shaped lids with various types of knobs, hat-shaped lids, gourd-shaped vessels with narrow necks and visage pots with three perforations. This is probably the rarest in burials of South India. The iron objects included a number of daggers of various sizes, a goad or *ankusha*, chisels, arrow-heads, horse-bits such as stirrups, curb chains, axes with crossed fasteners, battle axes, sickles, screw objects, etc. In the Megalithic levels at Polakonda, two mattocks without shaft holes were noticed. From Peddabankur Megalithic habitation, an adze with crossed fasteners was collected.

The copper objects included ferrules or casings for weapons like daggers, etc., bells and cups. There are also a few copper bowls, rattles, collyrium rods, bangles and rings.

Gold objects from the Megalithic burials included spiralled earrings, cylindrical beads, disc beads, etc. A large variety of beads was noticed from the burials and the habitation sites. These included beads of gold, silver, copper, besides different types of semi-precious stones such as carnelian, jasper, agate, onyx, serpentine, lapis lazuli, milky quartz, amethyst, glass, terracotta, shell and bone. Annular-shaped terracotta beads are common from Kadambapur and Pochampad burials.

The location and type of the Megalithic burials depended upon the geological and geographical conditions. They are invariably noticed over rocky high grounds unfit for cultivation and in close proximity to hillocks or an irrigation tank. To some extent the needs of cultivation might have dictated the situation of the burials but the availability of raw material for building such elaborate monuments might have been the main inspiration. In the Karimnagar region, no habitation was found near some of the burial sites. The burials at Kanukula near Sultanabad are situated over the plains of red sandy silt which is fertile for dry farming. At Kolakonda in Warangal district the cemetery is situated over the fertile plains of red soil which is now under active cultivation, but is just 100 m. away from a range of hills, where plenty of raw material such as granite boulders and slabs are available.

Our knowledge of the domestic architecture of the Megalithic folk is limited to the evidence supplied by the excavations in a few habitation sites. In the Karimnagar region we have the evidences from the sites like Peddabankur, Kolakonda, Polakonda, Budigapalli, Yelawaram and Peddamarur. In any of these sites, no permanent structures were noticed. At Peddabankur, excavated

by the author, a number of elliptical structures exposed in the lowest strata are definitely assignable to the Megalithic period, in view of the associated characteristic finds such as pottery, beads and other objects. The recently conducted excavation by the author at Peddamarur, revealed a few post-holes in the strata assignable to the Megalithic phase. It is really interesting to note that, though plenty of shale slab was available at Peddamarur, there is no evidence of its use for habitational structures.

The geological factor has a definite bearing on the sepulchral architecture of the Megalithic folk. The Megaliths were invariably built of the locally available stone. When laterite or dolerite was not available for the erection of boulder circles they made use of whatever was locally available, such as conglomerate boulders or sometimes the shale slab, horizontally piled up into a circle around the burial. In the lateritic regions they carved underground cells for burying their dead. When any kind of suitable stone was not available they made use of terracotta urns. The entire burial site at Tenneru in the Krishna district consisted of only sarcophagi burials in the shape of bath tubs.

The main basis of their economy was agriculture supplemented by hunting and domestication of animals. Various scholars have opined that the Megalithic folk were responsible for the introduction of advanced methods of agriculture based on irrigation. Most of the burial sites are situated in the proximity of large irrigational tanks as at Budigapally, Torur, Kanukula, Kadambapur, Polakonda, Rajagopalapet, Ramunipatla and Kethreddypalli. It appears that rice and ragi served as their staple food. This was supplemented by domestication of a variety of animals such as sheep, goat, swine, fowl, and cattle. The food habits of the Megalithic folk at Peddabankur demonstrated that cattle formed a considerable part of their diet. The dog, wolf, hyena and horse were known to them. Their knowledge of horse and its utility are well attested.

The artistic sense of the Megalithic people is well displayed in many of the rock paintings. The paintings at Budigapalli consist of horses with riders. In the paintings noticed at Regonda, two little men ride a disproportionately big horse. The paintings also consisted of tridents, bisecting a circle below (Nandipada), and simple tridents without circles. Several such tridents, bisecting circles below, were indented on the orthostats of some Megalithic cist burials at Chagatur.

We are at a loss to know the religious beliefs and objects of worship during the Megalithic period. Some scholars have suggested that the occurrence of trident or trisula which is invariably associated with Siva and other deities might have some religious connection. In the rock brusings at Mudumala, there is a figure of the Mother Goddess with outstretched hands and legs. This figure associated with the above mentioned

trident, bisecting a circle, may be a cult figure and in all likelihood it is the arch-type of the Mother Goddess figurines in terracotta, noticed in the Satavahana and later levels. The orientation of the burials, either in the north-south direction or in the east-west direction, may be an indication that the people were sentimental about the direction and must have been worshipping the Guardians of the quarters (Lokapalas). In one of the cist-burials, excavated by the author at Peddamarut, an all black ware dish was stamped with a solar disc, with radiating circle in the middle and enclosed by tongues of flame inside two concentric bands. This may be an indication that they worshipped the Sun God as well.

Anthropometric studies of the skeletal remains from the Megalithic burials reveal that some of them belonged to the autochthonous Australoid type and more or less medium statured Mesocranial type which it designated as Scytho-Iranian. The studies of the skeletal remains from Yeleswaram have revealed that they corresponded to brachy-cranial groups. The Tenneru skulls were identified by Bhowmik as Brachy-cranial. There is also an element of Dolicho-Cranial group.

Mortimer Wheeler suggested that the Megalithic culture could be dated between 200 B.C. to circa 50 A.D. He arrived at this date range in view of the Stone-axe culture overlapping the earliest Megalithic level and the terminal date was fixed by the commencement of Andhra Culture dated on the basis of Roman antiquities. Fortunately, now we have a series of radio-carbon dates from various sites. Hallur gave the earliest date as 1105 B.C. \pm 105 and the latest being of Halingali which gave 80 B.C. The Megalithic habitation at Takalghat was dated to 597 B.C. This was the date obtained from the middle horizon. The first phase of occupation of the earliest Megalithic horizon may still be pushed back by about a century or more, assigning it to circa 8th - 7th century B.C.

And in the other regions, the early historical period succeeded the Megalithic. The whole of Karimnagar region is dotted with a number of early historical sites. It is really tantalizing why the early historical sites are concentrated so thickly in the Karimnagar region. It is likely that the political nucleus of the whole or a part of the Deccan must have been situated in the region; alternately it might have been commercially very important and the ancient caravan routes traversed the region. Lastly, agriculture being the main occupation of the people, and the area marked by the extensive tracts of arable and alluvial black soil plains, the people must have preferred the region. Some important early historical sites are noticed at Peddabankur, Dhulikatta, Chinnabankur, Vemnur, Kapparaopeta, Kotilingala, Kachapur, Bodagutta, Bompalli, Rachapalli, Paidichintalapalli, Khadim Kanagarthi, Karnamamidi, Bodhan, Vadloor, Kolakonda, Polakonda, etc. The sites may be mainly divided

into two categories viz. the fortified and the unfortified. The early historical mound at Dhulikatta is enclosed by a mud rampart. Four gateways were traced at the four cardinal points. The excavation, conducted by the author at the southern gateway, revealed the guard-rooms prefaced by a gatehouse. The guard-rooms comprised two rectangular halls with a middle pathway, which is 14.40 m. broad. The gatehouse which prefaced the guard-rooms constitute a broad gateway outside and ambush niches on either side in the middle. The facade of the gateway must have had one or more storeys, with terraced roof, railings and pillars. The mud ramparts with the present height of 5 m. was constructed of earth dug out on the outside.

At Kotilingala, situated at the confluence of the Peddavagu and the Godavari, is an early historical mound enclosed by a mud fortification. The mound is roughly 50 hectares in extent, probably the most extensive so far discovered in the Karimnagar region. The present town of Bodhan in the Nizamabad district is another extensive early historical site to an extent of about 1 sq. km. Some writers believed that it was once the capital of Asmaka country, known as Potali or Podana.

At Vadloor in the Kamareddy taluk of Nizamabad district is another site surrounded by a mud fortification to a height of 6 to 9 m.

The villages of the early historical period were marked out by the natural boundaries such as forests, thickets, rivulets, hills, etc. The settlement at Peddabankur was a village site with no ramparts around. The excavation, conducted by the author under the auspices of the Department of Archaeology and Museums, revealed three huge brick enclosures, two of them measuring 30 x 30 m. and the third one measured 18.75 x 18.75 m. The enclosures appear like small castles and have only a single gateway either in the north-east or north-west corner. These were evidently occupied by the wealthy individual families.

The roads and their planning formed one of the most important aspects of the town planning. The road through the southern gateway at Dhulikatta was paved with rubble and veneered with morrum and sand. This might be the method of constructing the roads in other towns as well. The important commercial towns and village, were possibly connected by a network of roads. The region was actually traversed by the ancient trade and pilgrim routes (*sarhavahapatha*), leading from north to south and east to west. Probably, it was considered essential to have hills and mountains surrounding the townships to serve as natural barriers to obstruct the enemy forces from attacking them and also add to the effect of the landscape. Fortification was needed when the towns or the villages are built on plains. After the towns have been planned, the roads, both highway and the central ones together with Mahathyas, Uparathyas, have been planned out.

The excavation in the middle of the mud rampart at Dhulikatta revealed a palace complex and residential quarters which have seen several phases of construction. The plan of the main building, especially of the 3rd phase, may resemble that of a quadrangular building known as *chatussala*, with four rectangular halls on four sides and a central courtyard opening to the sky. This phase was characterised by spacious halls with floors paved with brick, multi-storeyed buildings, granaries, wells and drains connected to a network of sewage. The granaries were constructed of brick in the shape of an inverted pyramid, tapering towards the base. The bricks were laid in receding layers so that one can easily get down to the floor. The buildings of the fourth phase were plastered with lime and burnished to smooth surface. The most notable feature is the lime concrete-paved floors.

Whatever water was used by the householders had been drawn from wells, constructed of brick and occasionally terracotta rings. Peddabankur excavation revealed as many as 22 wells. Of these only a single well was lined with terracotta rings with square brick casing, enclosing the rings at the top course. It was noticed that the semicircular flat-based bricks (hog-backs), with a height of about 30 cm., were kept over the top courses of some of the wells at the spot, where from water was drawn, possibly allowing water slip either inside or outside the well, mitigating the damage to the brick-lining.

Brick cisterns or troughs formed invariably the essential feature of the civic life. Many such cisterns noticed at Peddabankur were constructed of well-burnt brick. Some of these had floors rammed with morrum over which it was paved with brick to prevent percolation.

None of the sites excavated gave us any evidence of the temples of the Brahmanical origin. But the excavation at Dhulikatta revealed a Buddhist stupa. The stupa consisted of a brick drum standing to a height of 2 m. over a single layer of rubble basement. The *anda* or the dome rises over the *garbha* to a height of 5 m. and crowned with a *harmika* and *chhatra*. The lowest brick course of the *anda* above the drum slightly projects and then a layer of morrum to a thickness of 36 cm. was laid over the first course. The second course of brick above the morrum was arranged in headers and stretchers. The *garbha* of the stupa was decorated with 47 carved *ayaka* slabs. On one of the slabs the Muchilinda Naga, protecting Lord Buddha, who was symbolically represented by the feet, was exquisitely delineated.

Another Buddhist settlement, more extensive than Dhulikatta, was situated on the top of a flat hill near the village Phanigiri in the Jangoan taluk of Warangal district. There are ruins of more than 30 stupas, most of which are circular in plan and raised over rectangular stone basement.

As the establishment was raised over the hill the constructions were supported by buttresses in the shape of boxes in order to prevent erosion.

Gajulabanda, 5 km. east of Phanigiri, is another Buddhist settlement which is situated near a huge tank. A trial excavation by the Department of Archaeology and Museums revealed the existence of a stupa, a viihara complex and a chaitya. The construction of the stupa indicated two phases with marked variation in plan and execution. A totally ruined Buddhist stupa was noticed at another village by name Tirumalagiri in the Jangoan taluk. The entire area which was hallowed by the presence of Buddhist stupa is now occupied by hutments.

The early historical settlers in the Karimnagar region had attained a very high degree of civilisation having fortified towns, palatial buildings, sewage, well laid-out roads and a good water supply. Their economic life was a combination of agriculture, animal husbandry, hunting and metallurgy. Most of the towns and villages were raised in the middle of arable plains. The clearing operations of the jungles for making the land suitable for the cultivation were carried out with the help of flat of iron, hafted to wooden handles. In the later stages socketed axes, celts arrived on the scene. Sickles found in large numbers in the excavations were used for harvesting. We also recovered a good number of plough-shares. The extensive use of oxen in the agricultural operations for heavy traction or prolonged draught work is attested to by ankylosed bones of cattle. Beside the agriculture operations, many animals such as cattle, buffalo, sheep, goat, dog, swine, etc., were domesticated. In addition to the domesticated animals they practised hunting of the wild animals. The hunted animals included deer, pig, turtle and a large variety of birds.

The carpenter played an important role in the economic life of the people. The village dwellers included the carpenter, the potter, blacksmith, barber, and washerman.

The knowledge of iron smelting and forging was known from the beginning of the 1st millennium B.C. Iron ore was found and smelted at Warangal, Konasamudram, Dindurthi, Komarapalli, Erannapalli, Tellakunta, etc. The method of smelting consisted of laying several alternate courses of charcoal and iron ore and daubing the entire pile thickly with clay to prevent heat from escaping the kiln, which was circular in plan, and must have been provided with passages for the intake of air, escape of gases and outlets for molten iron. The collected molten iron was cooled off by immersing into water and then hammered out for removal of charcoal. The method of manufacturing steel, practiced in the Karimnagar region, was to cut out blocks of iron into small cubes. These small cubes were put in the crucibles of various sizes. The fire was then kept up with dried

branches of teak, bamboo and green leaves of various species. It was allowed to subside and when the crucible was opened a cake of great hardness was found weighing half a pound or more than the original cube placed in the crucible. One such crucible found at Dhulikatta is made of iron and measured 15 cm. in diameter.

There is a vast assemblage of iron objects from the early historical sites particularly from Peddabankur and Dhulikatta. These included weapons of war and chase such as spear-heads, lance-heads, spikes, and arrow-heads. The agricultural implements included sickles, plough-shares, spades, etc. The tools of the blacksmith are the bellows, sledge-hammer, axe and tongs. The carpenter's tools included axes, adzes, chisels, drills, saw-blades, nails, rivets, staples, etc. There is a wide variety of domestic implements such as choppers, knives, razors, forks, lamps, ladles, domestic trowels, keys, ferrules, styli, antimony rods, balancing rods, etc. The copper objects included mainly antimony rods, sewing needles, tooth-picks, ear cleaners, finger rings, bangles, amulets, ear spools, spoons and stylised palms, jewel boxes, copper rattles, etc. The lead objects are beads, bangles and spools. There is also a good number of bone, shell and horn objects. Among the horn objects are many arrow-heads, mainly of two varieties: one type is pointed at one end and the other end is faceted while the other type is pointed at both the ends. Among the bone objects are many game-dice.

Bead making was a very prosperous industry during the early historical period. The common precious and semi-precious stones used for beads are carnelian, agate, banded agate, garnet, blood stones, beryl, jasper, amethyst, quartz-crystal, lapis lazuli, besides glass terracotta and shell.

Like architecture, the sculptural art also reached a very high degree of perfection. The Buddhist stupa at Dhulikatta is decorated with 47 carved *ayaka* slabs. Some of them display a five hooded Muchilinda Naga. The Naga slab was flanked by two ladies standing with floral offerings. The ladies are profusely decorated with cubical ear ornaments, stamped with beautiful lotus medallions, the profuse hair made into side-knots, broad necklaces of several strands, broad waist belts with a middle band of lugged tabloid beads, and beaded wristlets.

Besides the solemn religious scenes, the panels also display some spectacular themes where a man holds the tail of a fleeing tiger.

The excavations have yielded a large number of terracotta figurines of both human beings and animals. The collection also included some hand-made archaic figurines. Among the female figurines are Mother Goddesses with head shown as a prominent mass with a round halo at the back and the breasts, hands, and legs pointed. Among the figures

made of double mounts, there are three types of Mother Goddesses. One is shown with out-stretched hands and arms lifted. The second type is made of kaolin, and holds a bunch of fruits in her right hand while the left hand is simply resting on the thigh. A parrot, perching on the right arm is nudging at the breast of the Goddess with its bill. In the third type the Goddess holds her prominent breasts with her hands from below.

There are three terracotta seals inscribed in Brahmi, two button seals of which one is made of ivory and the other of garnet. One terracotta seal is inscribed in Brahmi as '*Maha Talavarasa Vajasamikas Sabha*'. A beautiful horse was stamped in the middle of the inscription. The other seal is inscribed with the legend '*Vijaya pura hara kasa ratasa*'. The ivory seal is inscribed with the legend '*Ajani Siriya Game Kumariya*'. The garnet seal, probably the earliest of all, is inscribed with the legend '*Ka Ma Sa*' on an ovoid bezel.

Pottery forms the most essential need of the daily life of the common people. The entire range of pottery recovered from the early historical sites is mostly wheel-made. Broadly, the pottery can be classified into utilitarian and ritualistic. The utilitarian types include storage jars, smaller storage jars, water pots, carinated bowls, lid-cum-bowls, deep bowls, dishes, globular vessels, straight or concave-sided bowls, spherical bowls, lotas, pyriform wine vessels, lamps, ring-stands, finials, etc. Among the ritualistic wares is a globular vase stamped with *triratna* or *nandipada* symbol. Some of the dishes have white-painted spiralled design on the base of the interior. In the intervening space between the spirals there are white painted dots of different sizes. A pedestalled cup, decorated with bands of vertical and oblique lines, might have been used as censer of offering stand. Some pots are decorated with various designs such as chevrons, inside marginal bands of vertical notches, oblique notches above horizontal bands, circles enclosing endless triangles, creepers emanating from circles, lotus enclosed in serrated circle, tree, symbols below concentric circles, six petalled lotuses, twelve petalled lotuses, etc.

Many potsherds are scratched with graffiti marks such as arrow, inclining triangles, plough, Brahmi 'MA' or the tourine symbol, fish, circle enclosing a cross, bow and arrow.

Coinage became universal during the early historical periods. Even the *Mahasenadhipatis* and the *Maharathis* were issuing coins in their names besides the coins of the imperial dynasty. Peddabankur excavation yielded two hoards of silver punch-marked coins, one consisting of 168 coins and the other of 30. The coins are broadly divided into the rectangular and round. Among the rectangular type, there are two variations : clipped and unclipped. Among the round types are found the rounded and ovoid varieties. The weights of most of the coins range

between 3.32 to 2.4 grams. A potin coin with a big *swastika* symbol in the middle, with the legend of Mahasena on the obverse and an arrow and thunderbolt in a dotted circle on the reverse, is noticed at Peddabankur from the stratum earlier than that of the Satavahanas. There is also a large collection of Satavahana coins from the Karimnagar region especially from the excavations, which includes the coins of Satavahana Satakarni-I, Gautamiputra Satakarni, Vasistiputra Pulamavi, Sivasiri Pulamavi, Yajna Satakarni and Rudra Satakarni. Interestingly, a single silver portrait coin came from Dhulikatta excavation pertaining to Vasistiputra Sivasiri Pulamavi. Besides the above coins Peddabankur excavation yielded five Roman coins and four Roman imitations of lead, plated with gold. These imitations have double perforations for suspending them around the neck. The remaining coins belong to Augustus (29 B.C. to 14 A.D.) and Tiberius (14 to 37 A.D.).

There are clear evidences of urbanization during the early historical period. The politically and commercially important towns were provided with ramparts with gateways at the cardinal directions. The mud ramparts were usually raised with the earth dug out from outside the settlement and the trenches thus excavated simultaneously served as moats. As most of the settlements have grown up on the banks of the major and minor rivers, people might have covered distances by boats made of wattle and covered with animal skin for making it water-tight. The region was traversed by highways from the north to the south and from the east to the west, but the routes traversed across heavy jungles full of savage beasts. Most of the merchandise must have been carried by the caravans of pack animals. Water was supplied mainly from the rivers and wells. Industries, metallurgy and bead-making, were scattered and every village and town was self-sufficient.

Commerce occupied an important place in the economic life of the people. Several classes of workers such as *kularikas*, *udayantrikas*, *tilapsakas*, *dhannikas*, *kolikas*, *vasakaras*, *kasakaras* are mentioned in the contemporary records. Each of these artisan groups had a guild or *streni* of their own. The special feature of these associations was the banking facility provided by them. There were a number of market towns in the interior such as Paithan, Tagara, Junnar, Karahakata, Nasika, Goverdhana and Vejayanti.

The people used to dress themselves in accordance with time, region and profession. We have evidence of the dress of the period from various sculptural representations and terracotta figures. The people decorated themselves with ornaments from head to foot. They were known as *makarika*, *chandrakarnika*, *chakrakundala*, pendants, necklaces, rings, wristlets and anklets.

The evidences regarding the Brahmanical religion are not quite clear. The religious beliefs still centered round local primitive forms of worship and rituals. They believed in the village gods and goddesses, trees and serpent cults and probably practised worship of the spirits. There are four types of Mother Goddesses: one is the *Ankadhatri*, or the mother and child; secondly, the Goddess with out-stretched hands and legs; thirdly the Goddess holding a bunch of fruits and a parrot perching on the right arm, nudging the breast of the Goddess; and in the fourth type, the Goddess holds her prominent breasts with her hands from below. Gajalakshmi was worshipped from a very early time. Regarding Buddhism, we have evidences of the stupas at Dhulikatta, Phanigiri, Gajulabanda and Tirumalagiri. It is likely the people believed in Gods and Goddesses as noted above and at the same time converged together from distances for the worship of Buddhist stupas. The early Satavahana kings were staunch followers of Vedic religion. We find mention of various gods such as Dhamma, Ida, Sankarshana, Vasudeva, Chandra and the four *lokapalas* viz. Yama, Varuna, Kubera and Vasava. The invocation to Dhamma in precedence to Ida and Sankarshana, etc. is the clear evidence of Buddhist leanings and at the same time of equal treatment of the Buddhist faith with the Vedic religion.

The people relaxed themselves by indulging in various sports and pastimes, which included many indoor and outdoor games and other recreations. The game of dice is a very ancient and popular pastime. The other favourite sports were hunting, taming of birds, animal fights, etc. The games specially intended for women are mostly indoor types such as *kandukakrida* or game of ball, hide-and-seek, run-and-catch and the hop-skip.

The evidences are not explicit regarding the burial practices of the people during the early historical period. There are two possibilities viz. they might have carried their dead bodies to far off places for the disposal at a common burial ground or might have cremated their dead bodies so that even a semblance of the human remains has not remained. Even the charred bones were collected for immersion in the waters of the rivers. An extensive cremation ground of the Ikshvaku period at Nagarjunakonda is a convincing proof that the people had forgotten Megalithism long back. Some of the *chayasthambas* erected at the burningghat suggest the beginning of the cult of hero-stones.



48. Gateway to Dhulikatta fort.



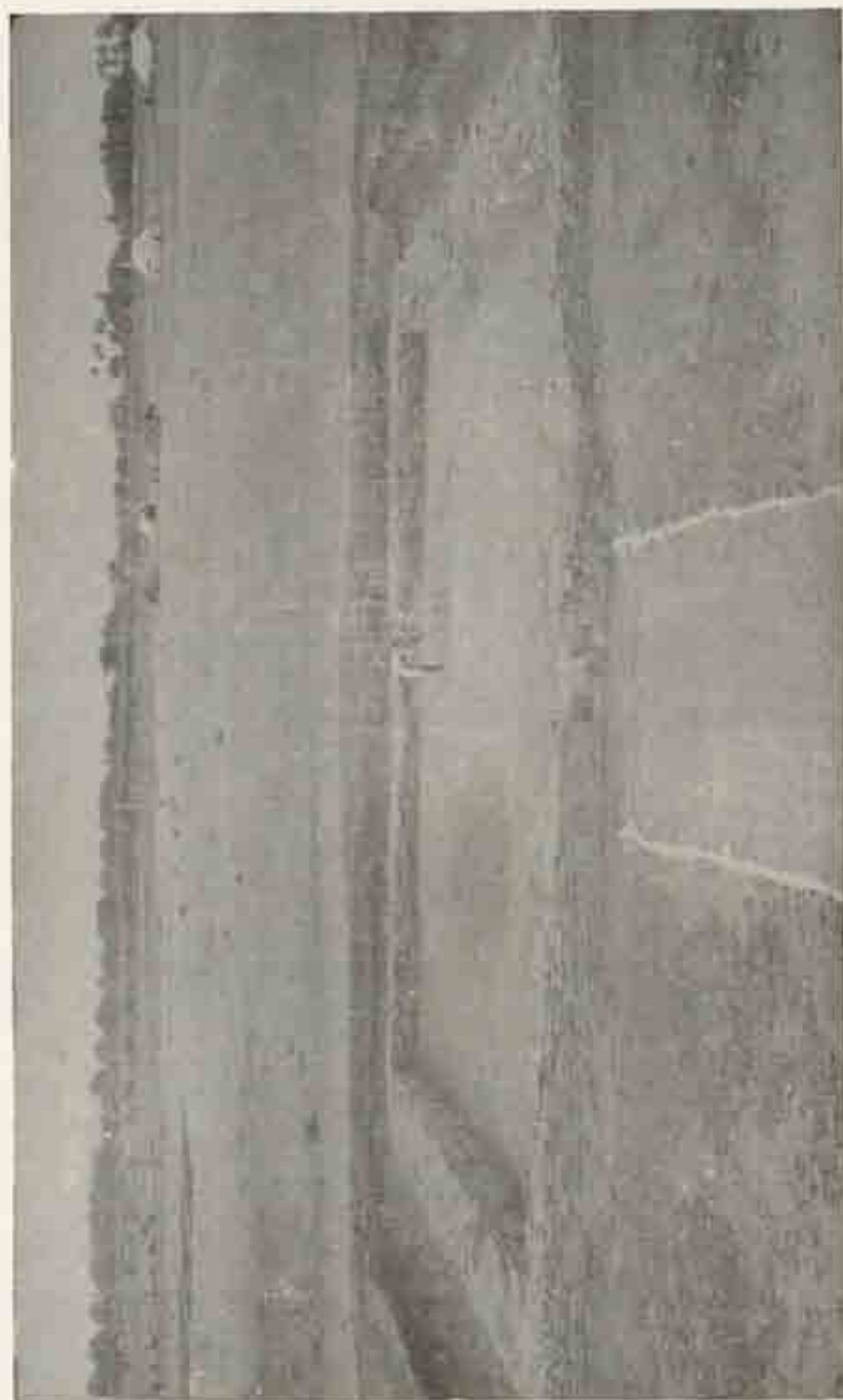
49. Excavation in the middle of Dhulikatta fort, showing Satavahana brick structures (residential quarters).



50. Brick-flooring of quadrangular Satavahana building, Dhulikatta.



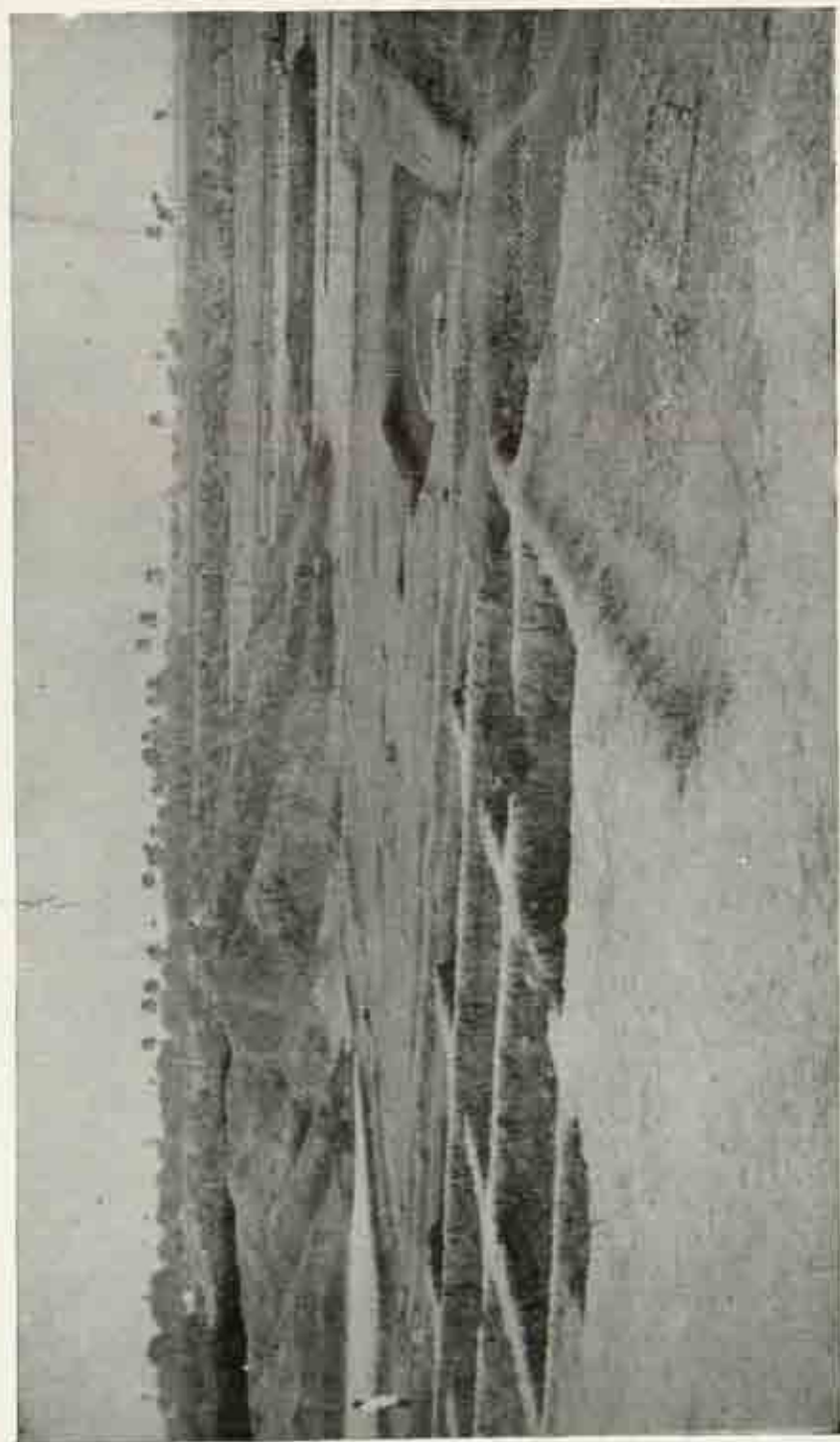
51. A square brick well from Dhulikatta.



Brick Enclosure No. 1 from Peddabankur.



Enclosure No. 2 from Peddabankur.



Enclosure No. 3 from Peddabankur.



Satavahana brick well No. 1, showing the brick lining after excavation.



Animal skeletal remains and pottery in a Satavahana brick well from Peddabankur.



Well from Peddabankur excavation, steened with wedge-shaped brick.



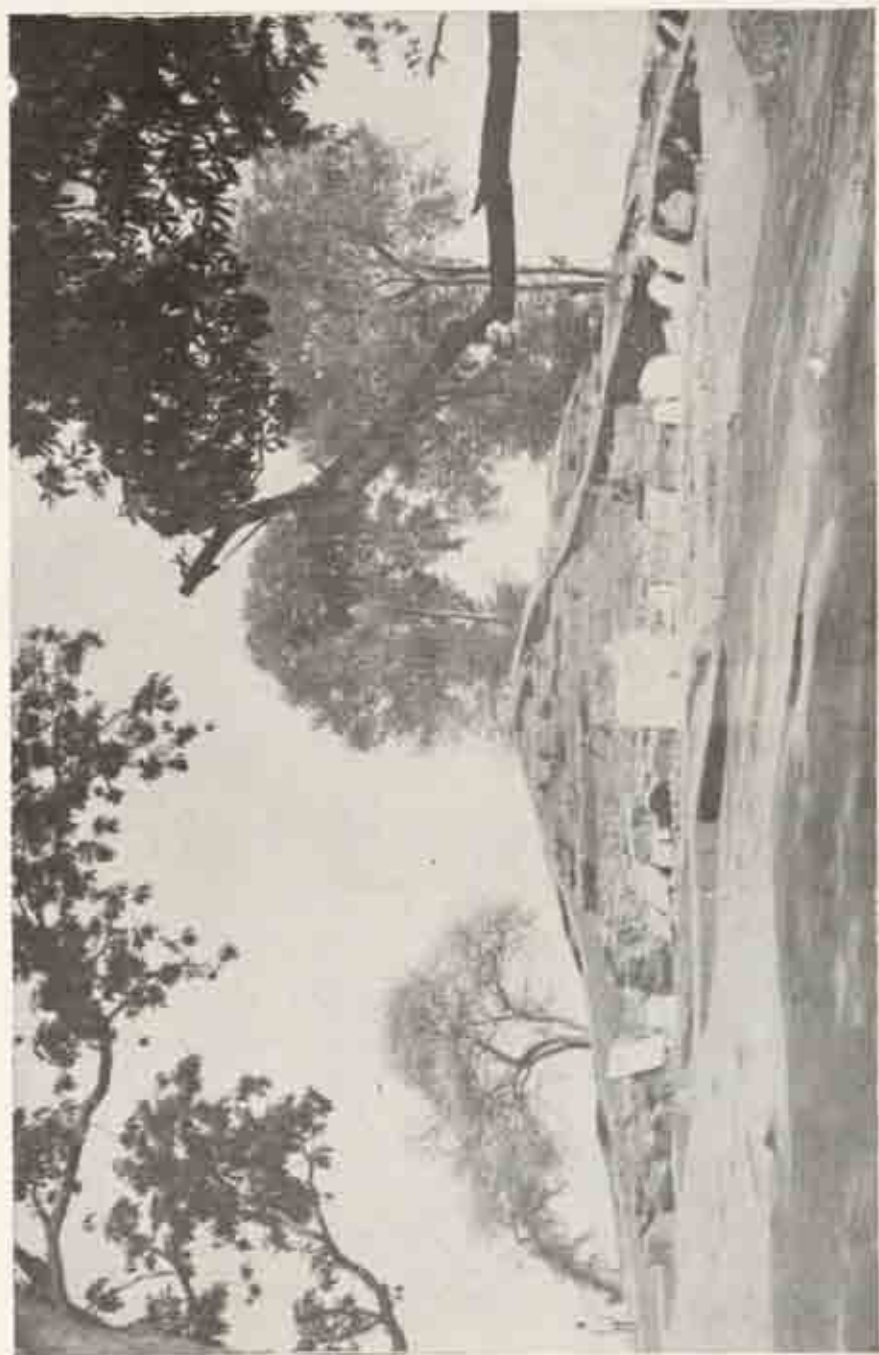
58. Soakage-pit, lined with Terracotta rings from Peddabankur.



57. Terracotta ring-well from Peddabankur



A cistern with a washing floor from Peddabankur.



General view of the Buddhist stupa at Dhulikatta during excavation.



61. Muchilinda Naga, protecting Lord Buddha—symbolically represented by His feet, at Dhulikatta—flanked by lady worshippers on either side.



62. Brahmi inscription found at the top of a Naga slab reading as *Ga ha pati no patha la sa* - from Dhulikatta.



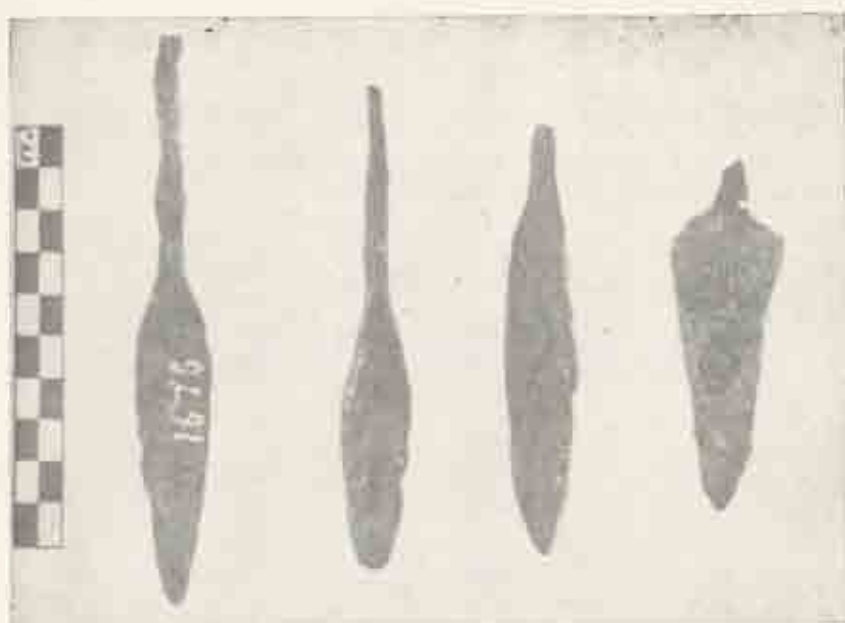
Northern Ayaka slab, showing worship of Dharma Chakra.



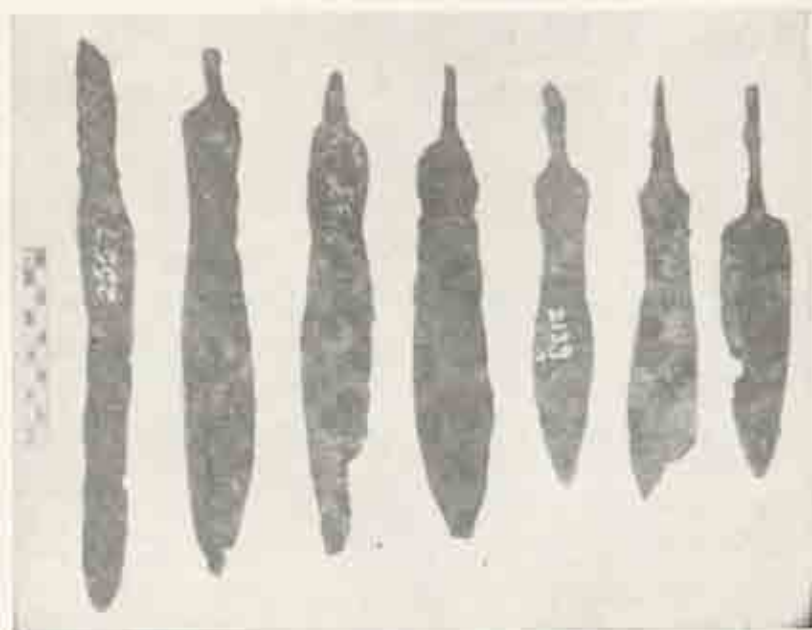
64. A carved slab from a Buddhist stupa at Tirumalagiri.



65. Terracotta seals from Peddabankur Excavation showing yoked plough and Jain symbol, etc.



66 (a). Spear-heads excavated from Peddabankur.



66 (b). Spear-heads from Peddabankur.

Figure 9

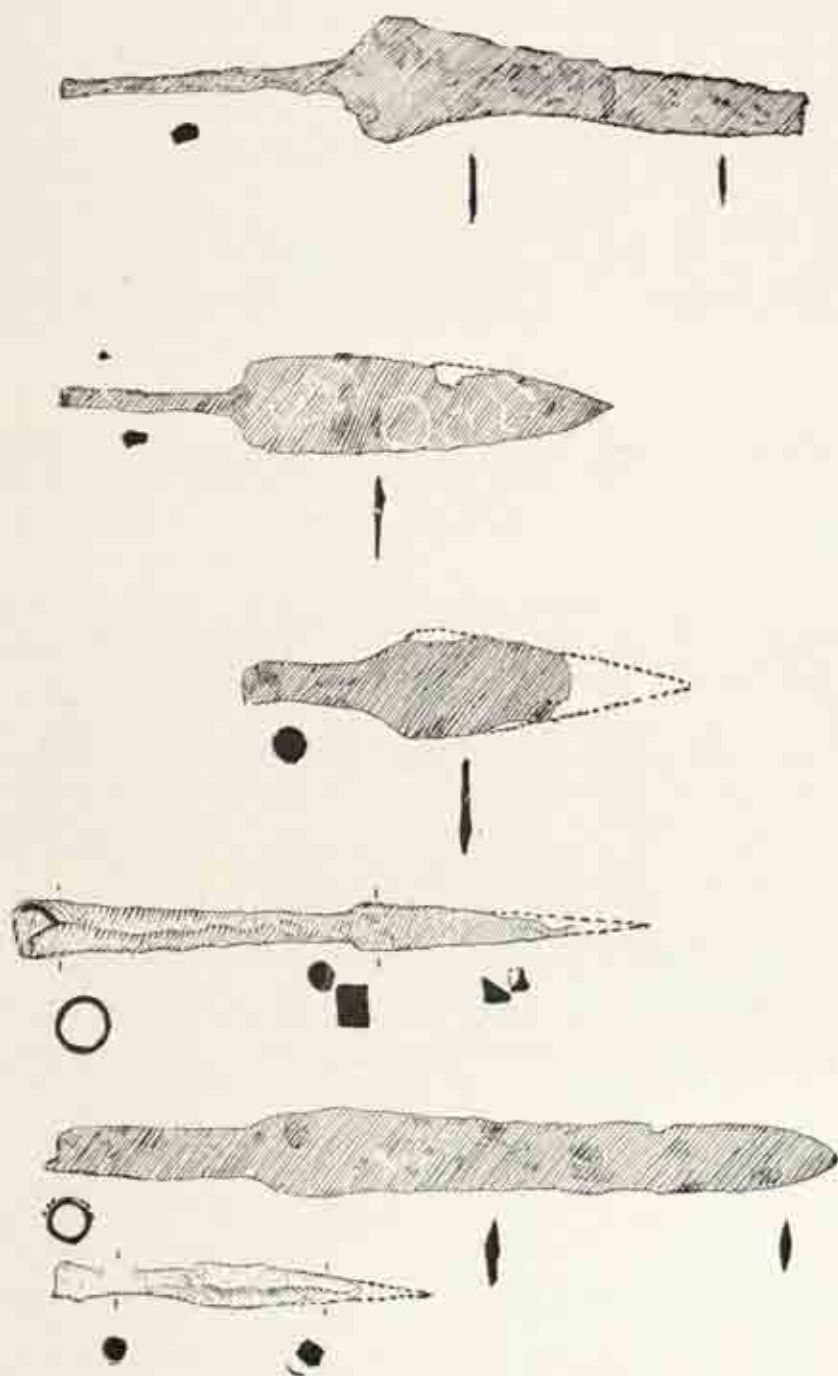
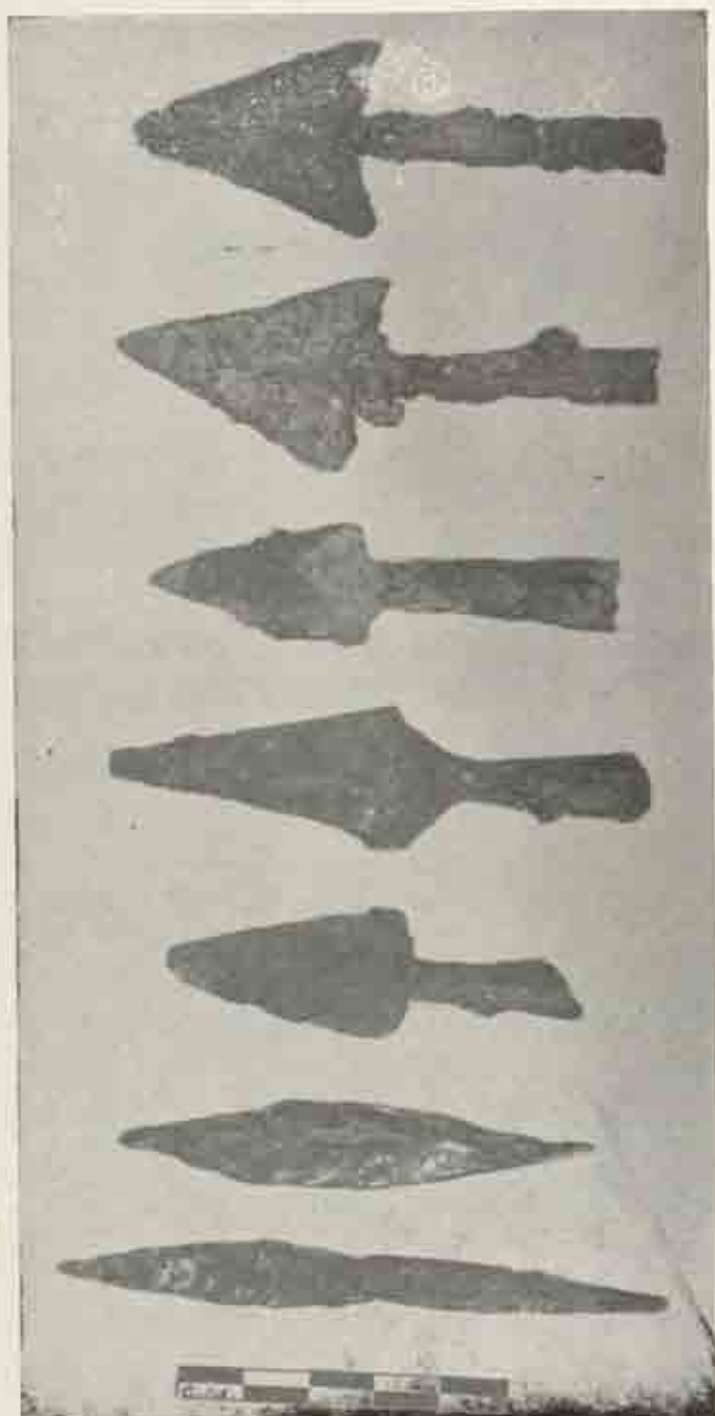


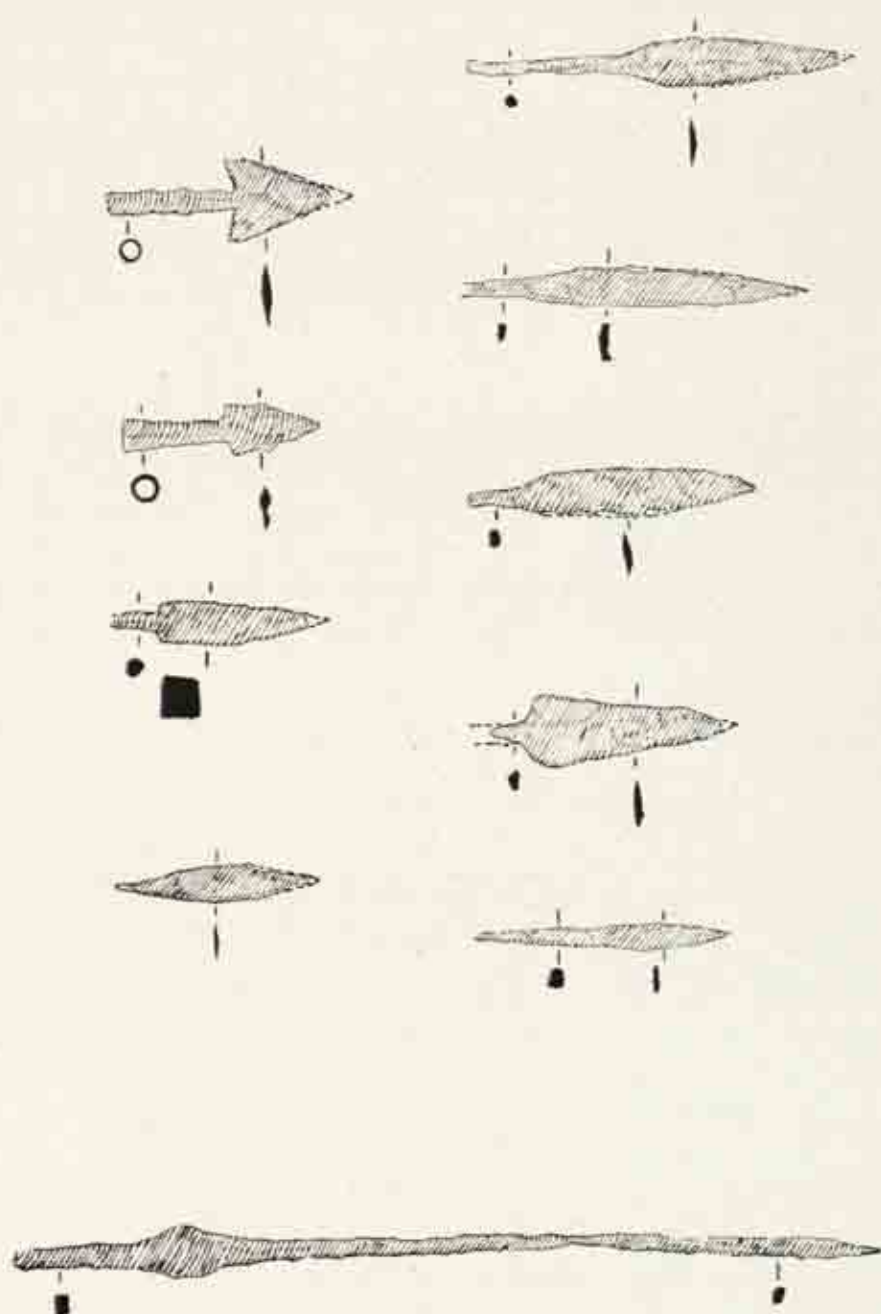
Figure showing lance-heads and spear-heads from Peddabankur.



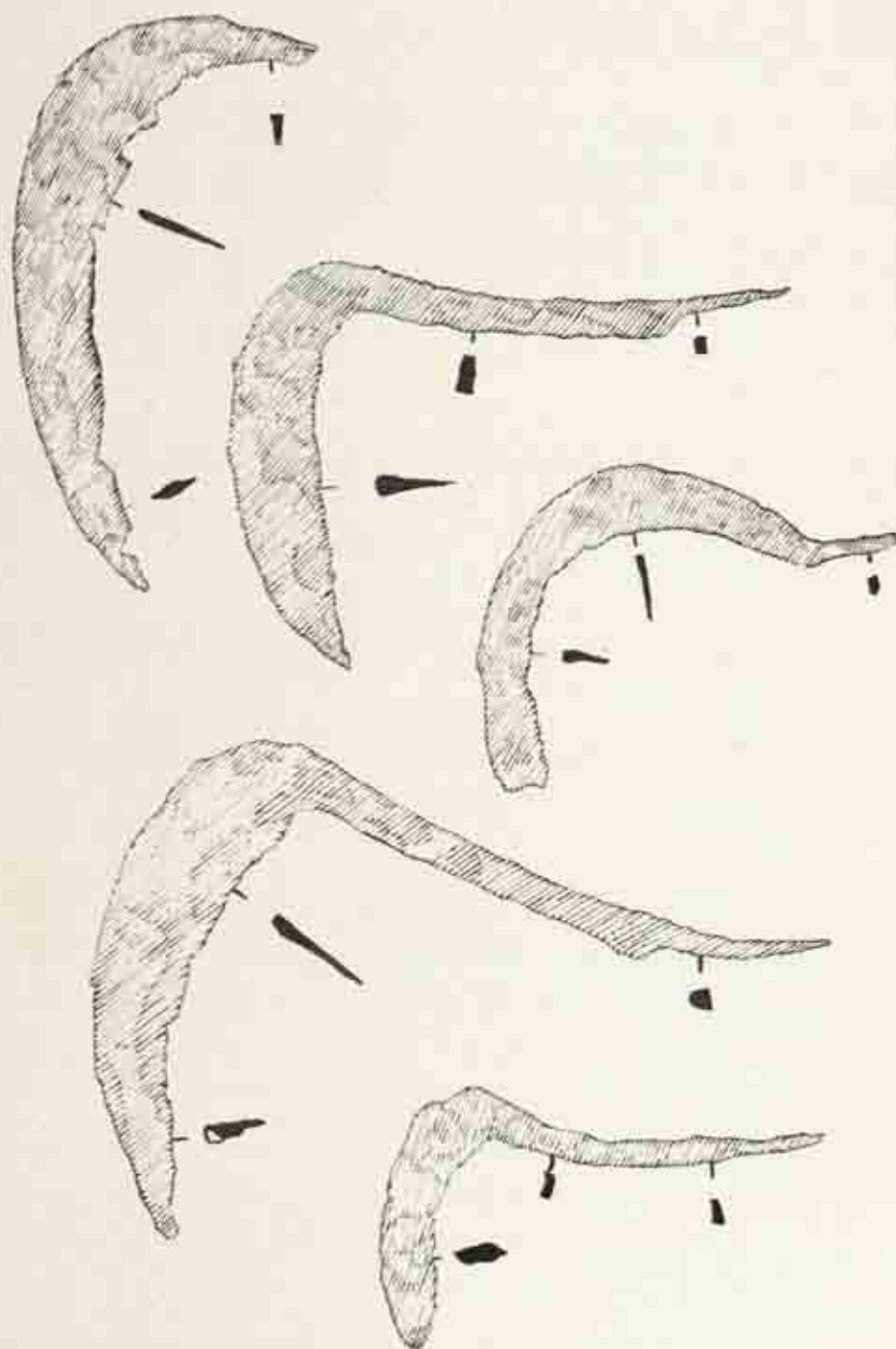
Lance-heads from Peddabankur.



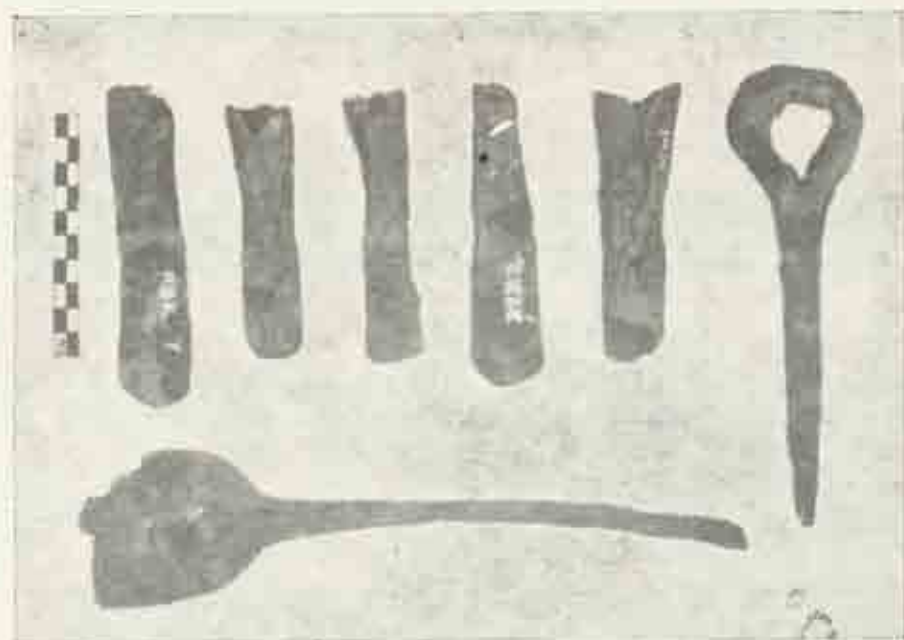
Arrow-heads from Peddabankur.



Drawings of arrow-heads and a spike from Peddabankur



Iron sickles and scythes from Peddabankur



69. Ploughshares (or hoes?), staple and domestic trowel (below)
from Peddabankur.

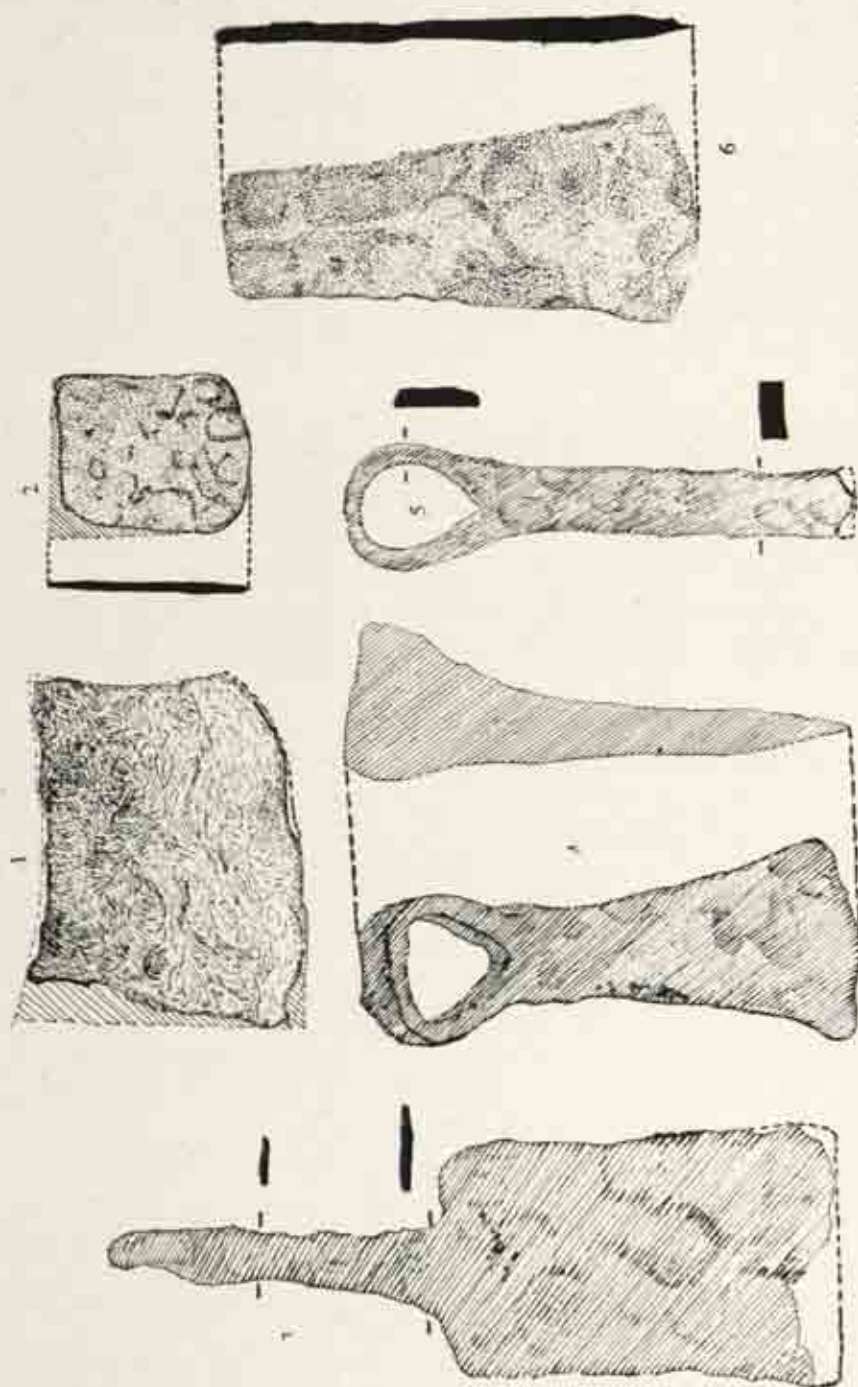
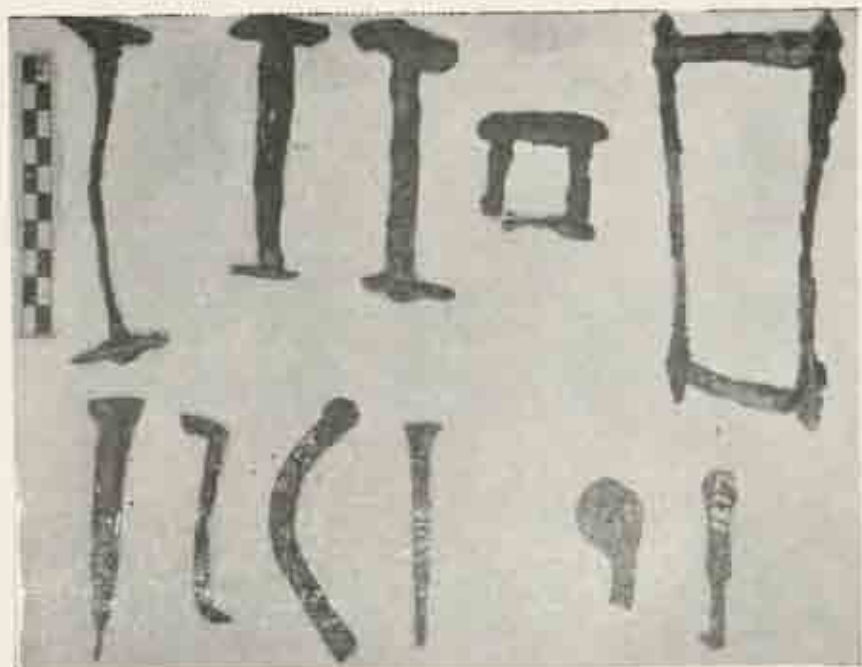
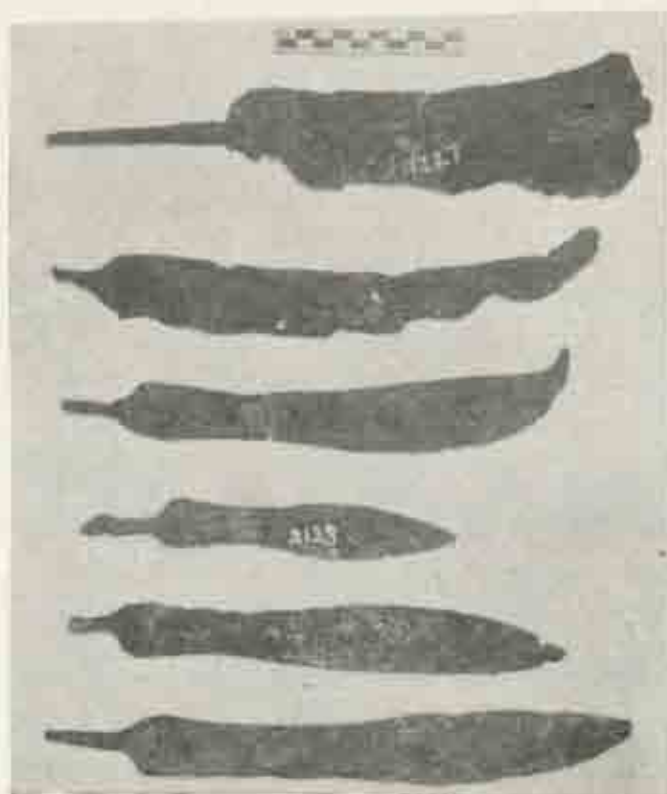


Fig. 12. Iron objects from Peddabankur : Nos. 1, 2 and flat celts; No. 3 spade; No. 4 socketed-adze; No. 5 (second from right bottom) socketed chisel.



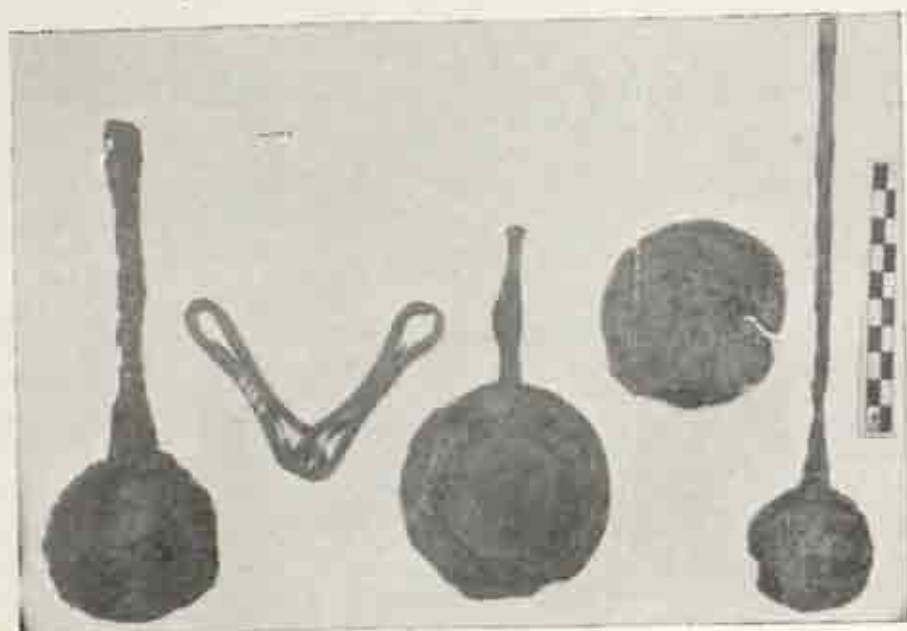
70. Nails and rivets from Peddabankur.



71. Iron choppers from Peddabankur.

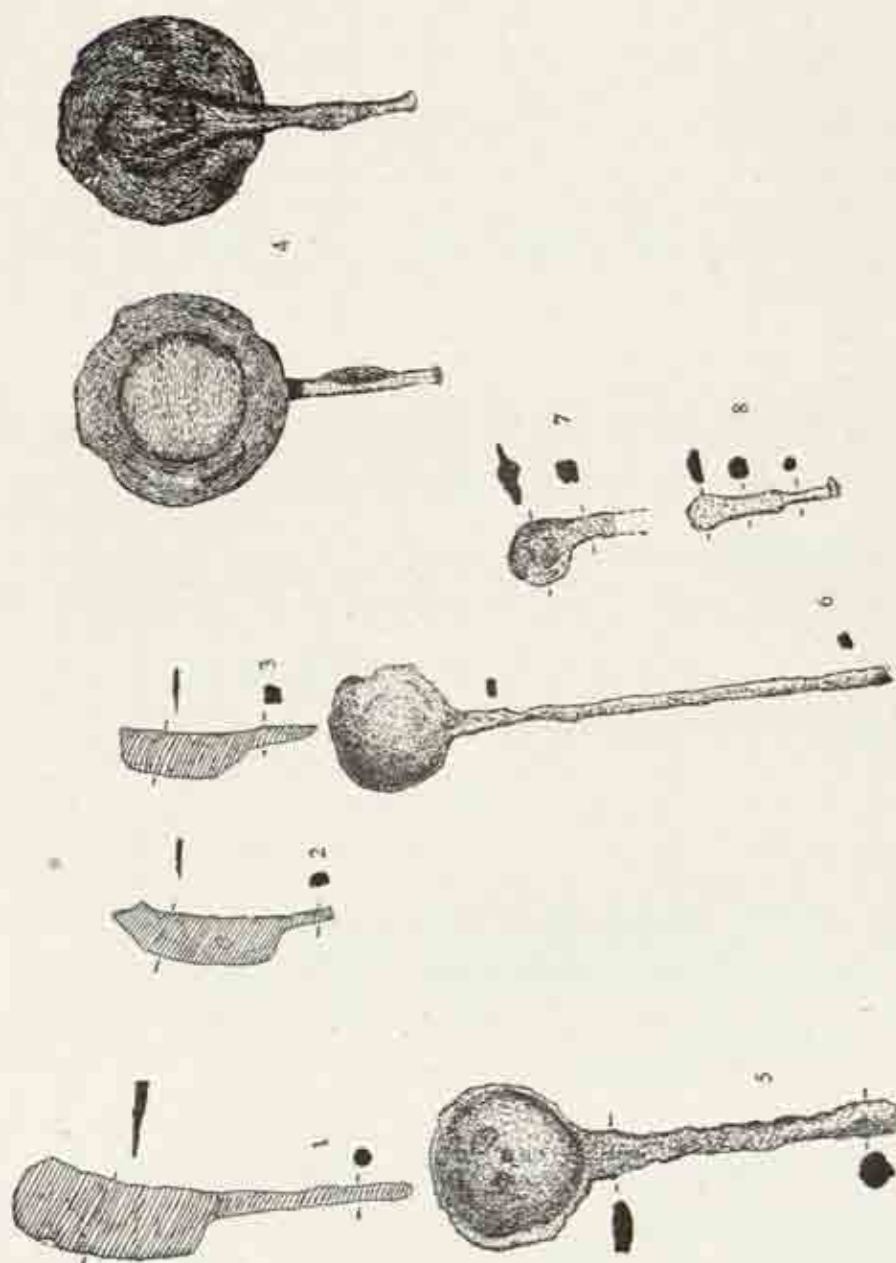


72. Razors and knives from Peddabankur.



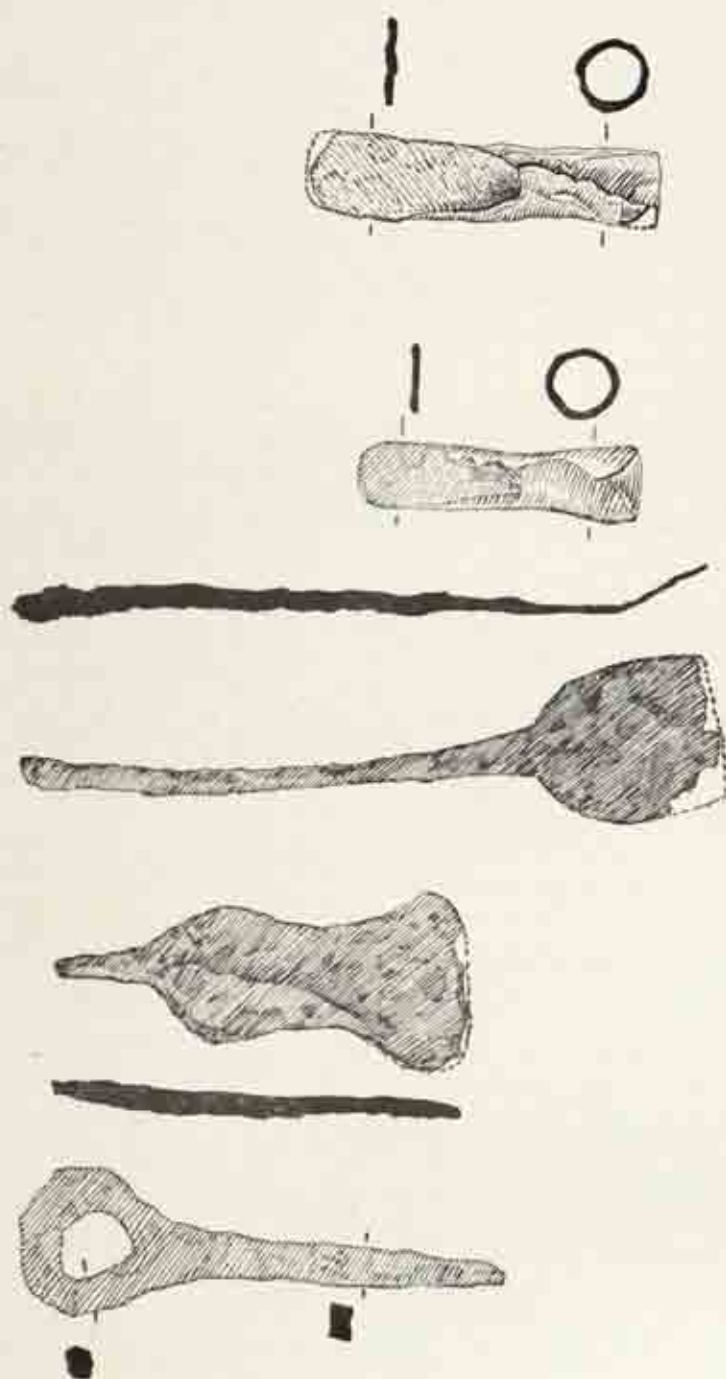
73. Ladles, lamps and curb-chain from Peddabankur.

Figure 13

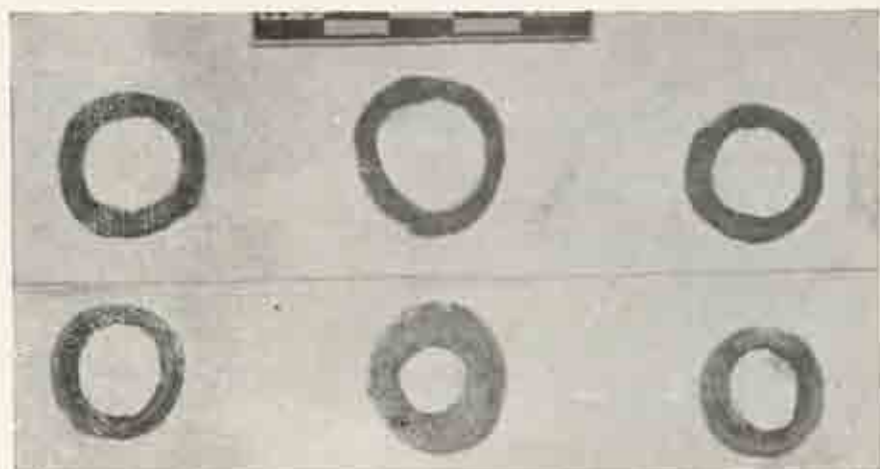


Razors Nos. 1 to 3 (top row left to right); ladders Nos. 5 and 6 (bottom row - left to right); lamp No. 4 (top - right); and key (No. 7 and 8) (bottom & middle - extreme right).

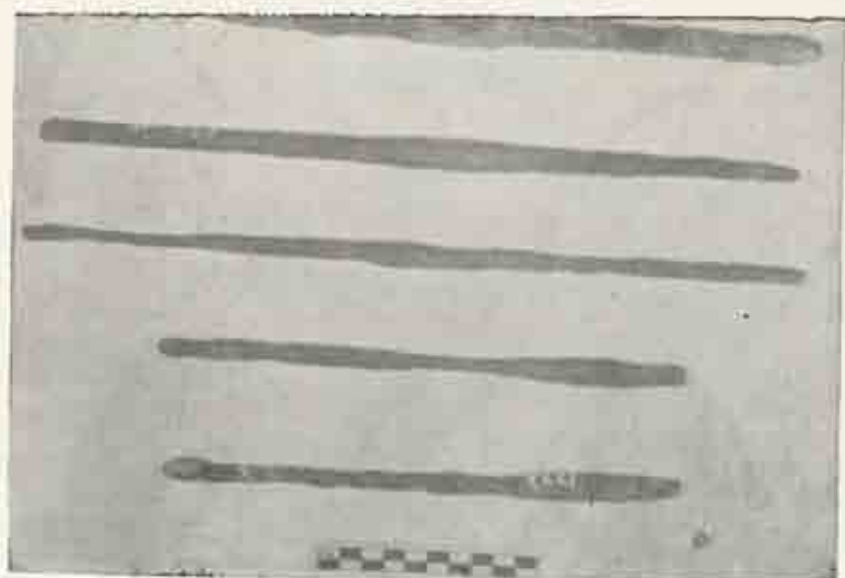
Figure 14



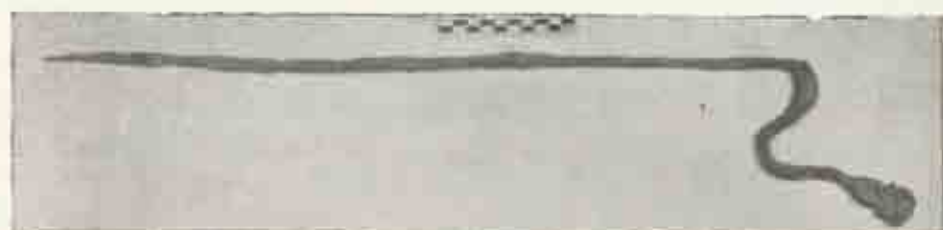
Domestic trowels and ploughshares (hoes?)



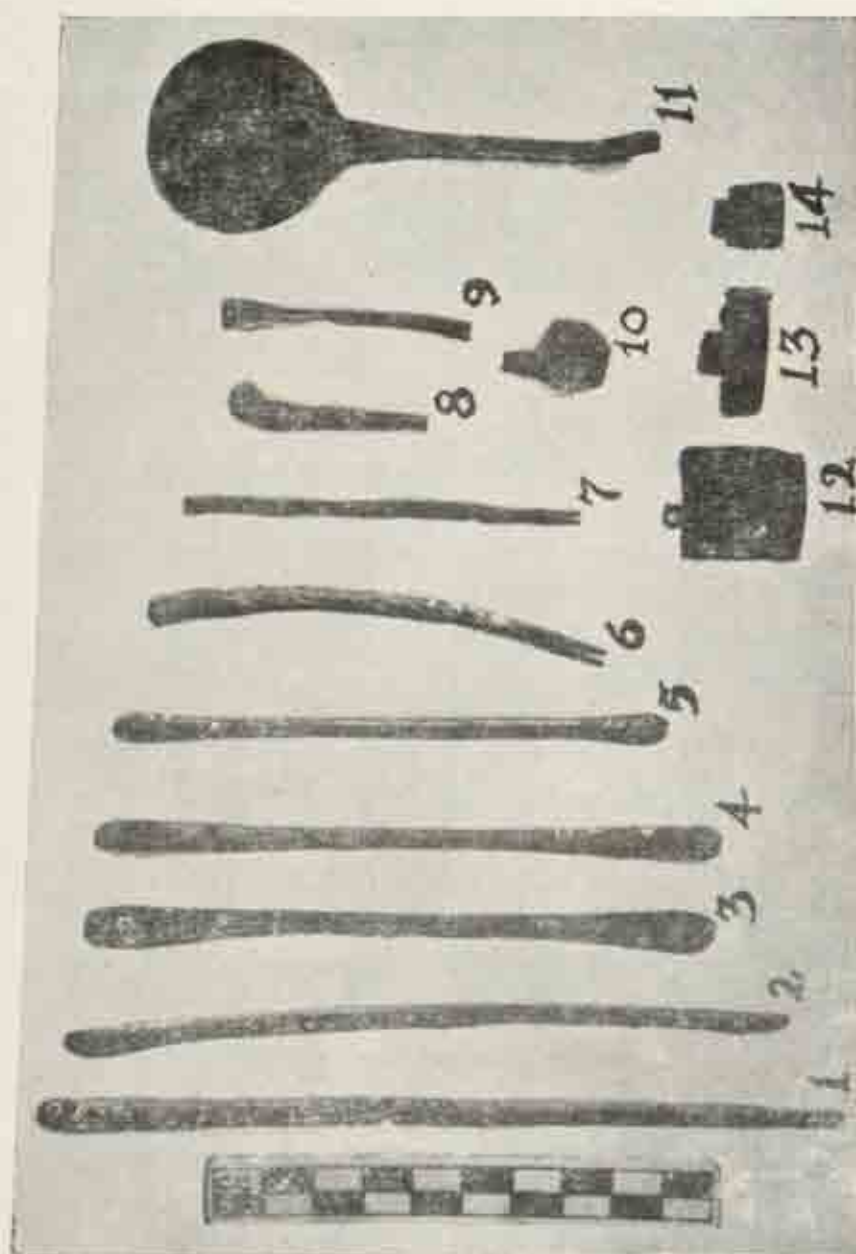
74. Iron ferrules, rings, Peddabankur.



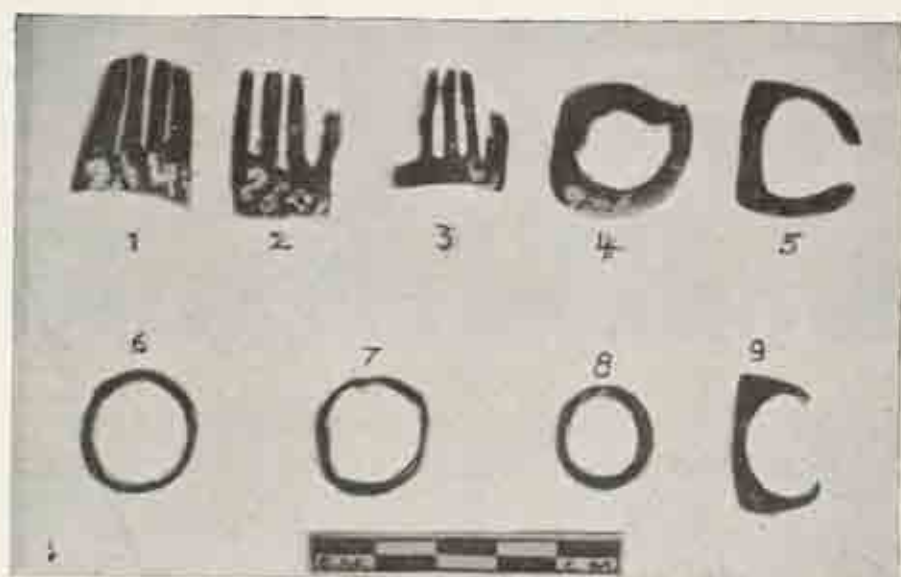
75. Iron balance-rods, Peddabankur.



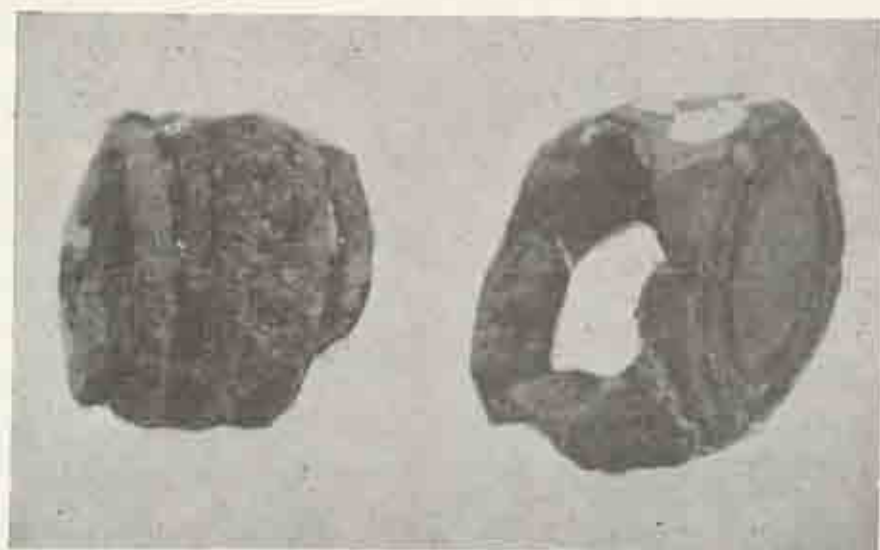
76. Iron snake, Peddabankur.



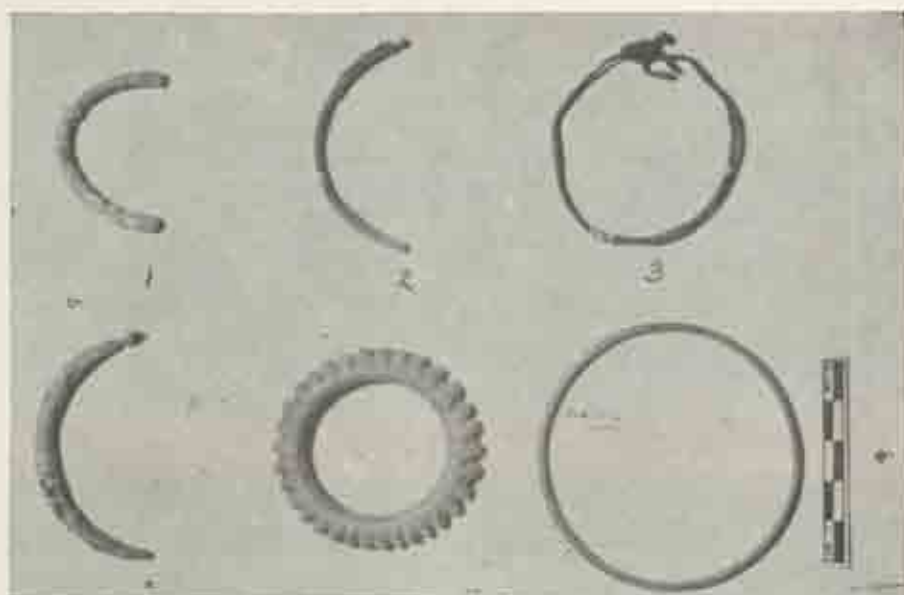
Copper objects : Nos. 1 to 5 antimony rods (Surgical); 6 and 7 Suturing needles (?), 8 and 9 Tooth-picks; 10 Rattle; 11 Shallow spoon; 12, 13 and 14 talismans.



78 (a). Copper objects: Stylised Palms and finger-rings, Peddabankur.



78 (b). Copper finger-rings: close up of a bezelled copper finger-ring and a spiralled wire-ring.



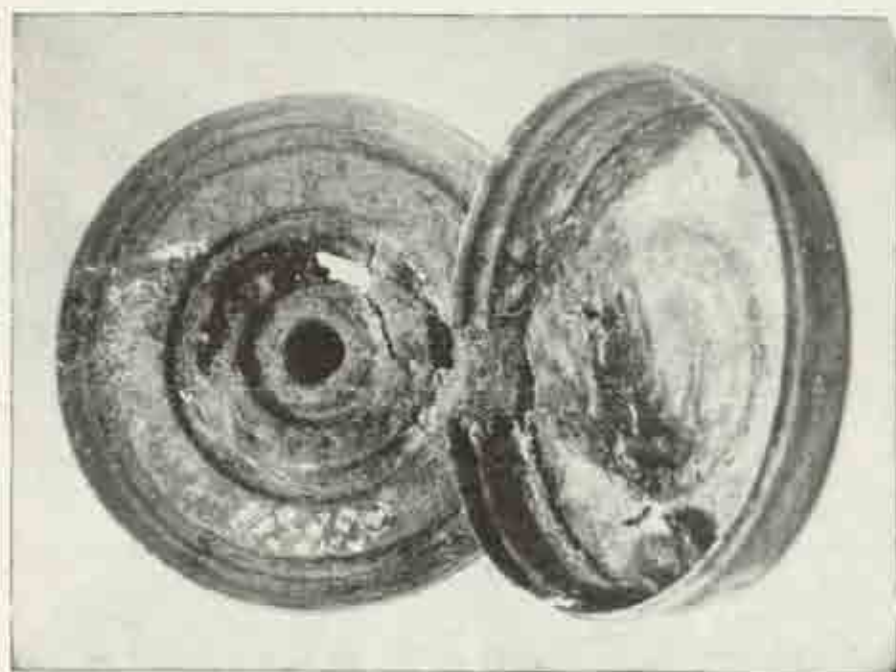
79. Copper objects: No 1, 5 and 6 bangles; and 2 and 4 (clinical?) suturing needles; No. 3 anklet.



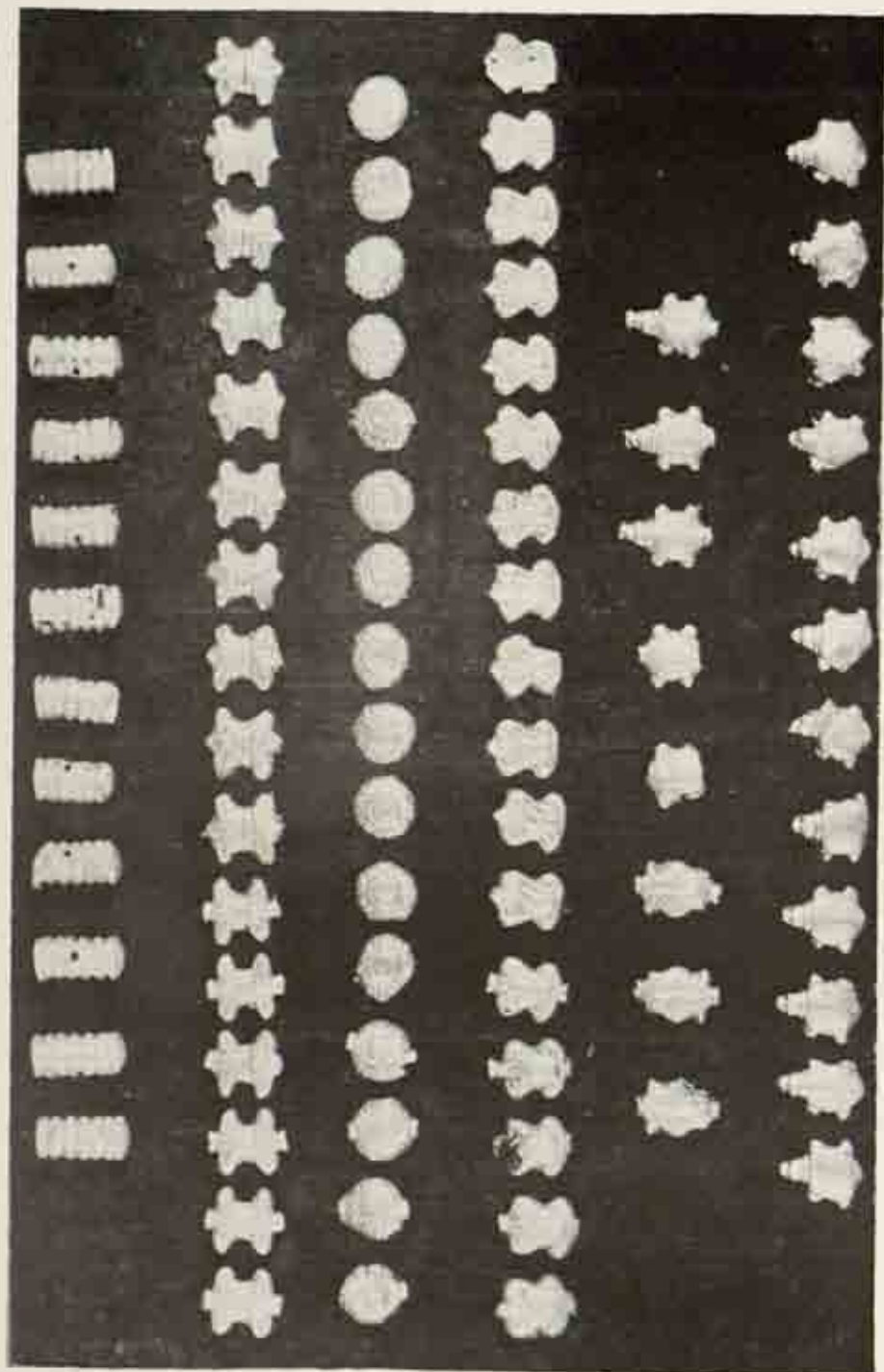
80. Hollow ear-studs of copper, Peddabankur.



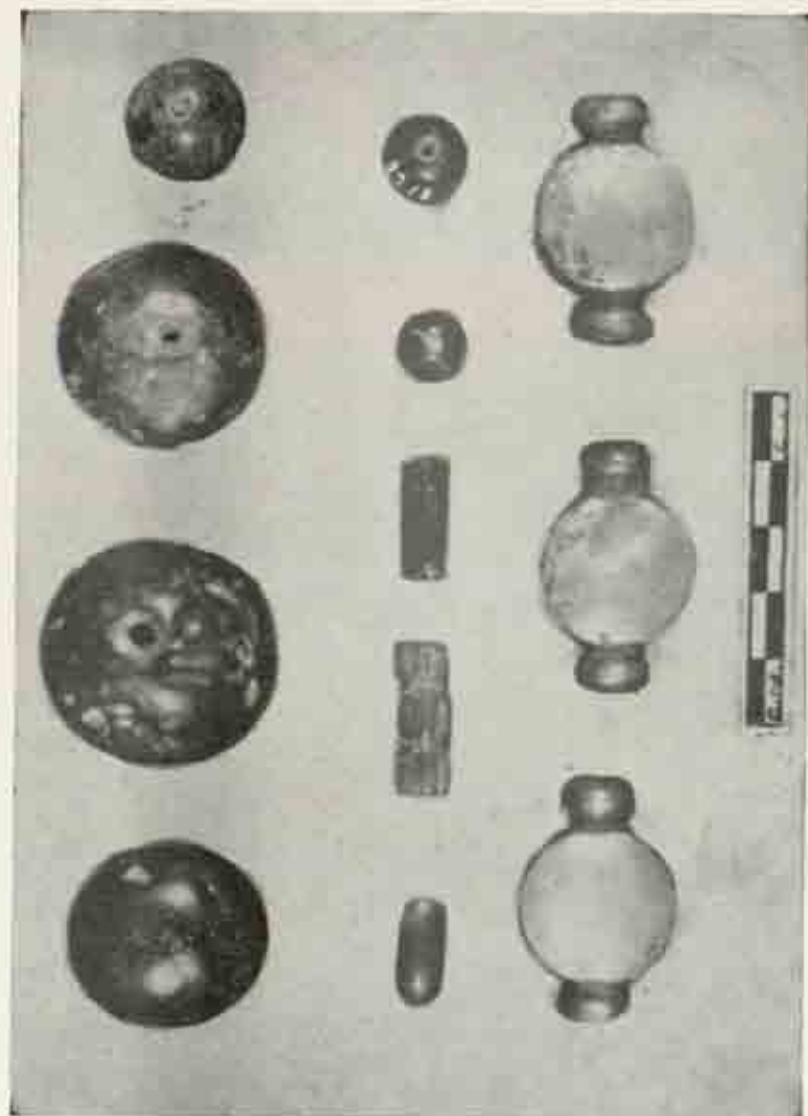
82. Bronze figure of Ankadhatri from Dhulikatta.



81. Jewel box of copper from Peddabankur.

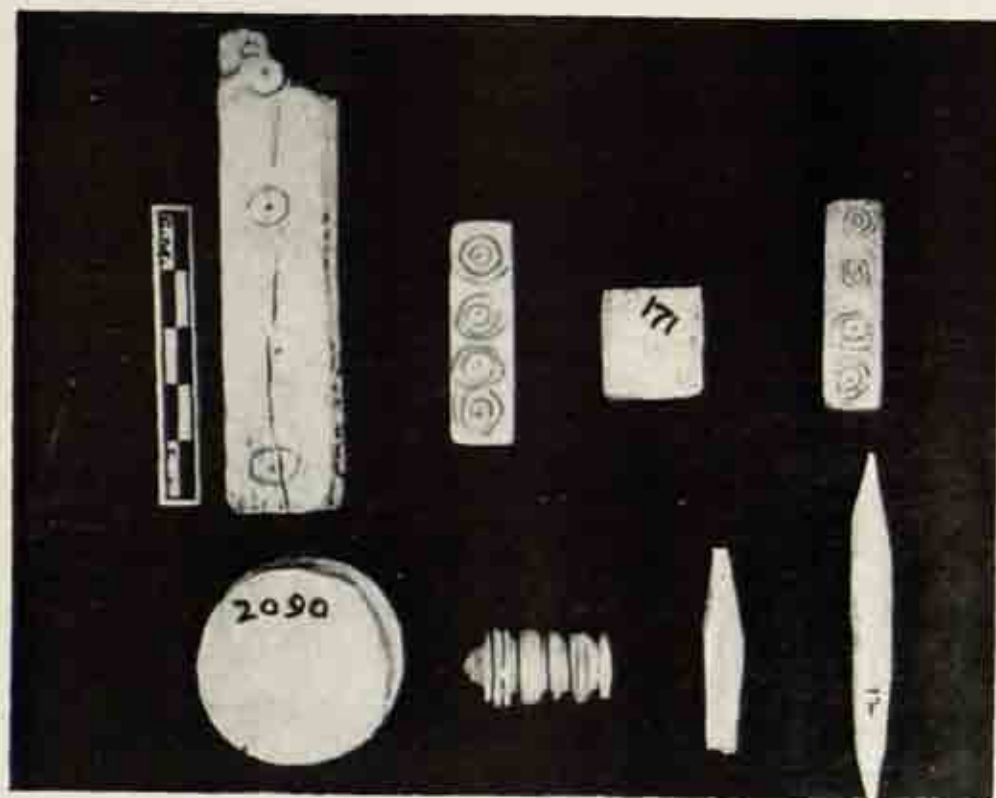


Gold beads in the shape of gadrooned cylinders, Vajra, sundisc, Nandipada, frog, designed and plain tortoise, from Kojilingala excavation.



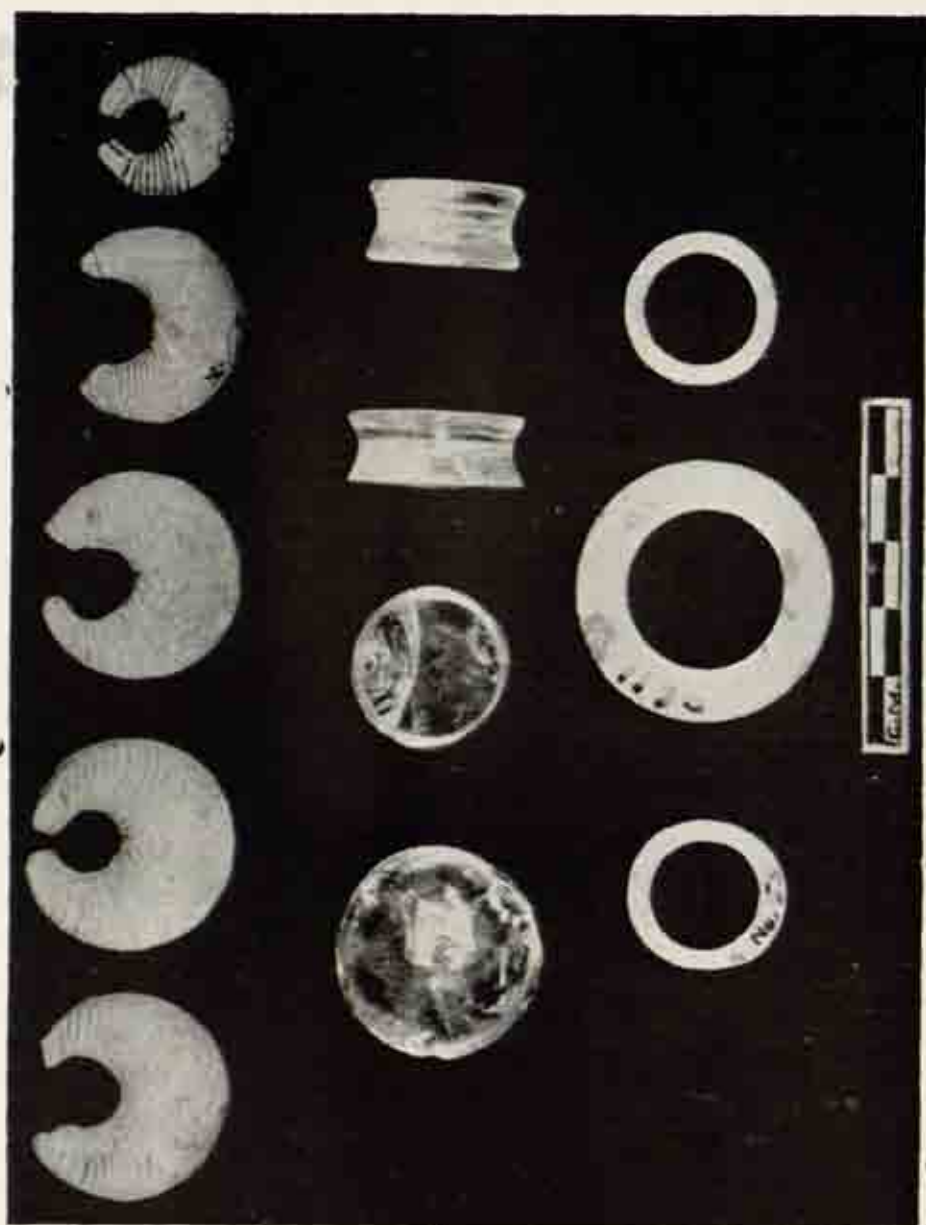
Beads from Peddabankur

Top row : Heliotrope or Blood-stone ; Middle : Cylindrical glass and spherical carnelian ;
Bottom : Silver tabloid lugged.



Bone and horn objects from Peddabankur.

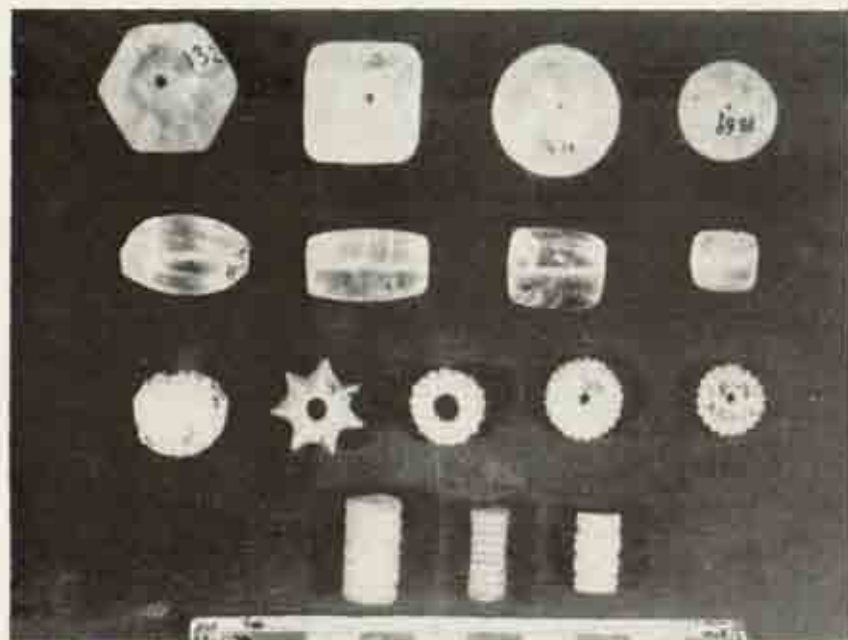
Nos. 1 to 4 bone dice ; No. 5 ear-spool ; 6 Mirror handle ;
7 and 8 Horn arrow-heads.



Top row shows Chandrika type of nose or ear-rings; Middle row shows crystal ear-spools; and Bottom row shows shell finger and toe-rings.



Etched carnelian and agate beads of cylindrical, barrel, spherical, tubular, tabloid and long barrel-shaped, etc. from Peddabankur.



Top row shows crystal beads of biconical hexagonal, biconical pentagonal and spherical shapes;

Second row shows crystal beads of faceted drum, truncated drum and cylindrical shapes;

Third row shows terracotta beads of the shapes of Rudraksha, star and amalaka;

Bottom row shows terracotta gadrooned beads.



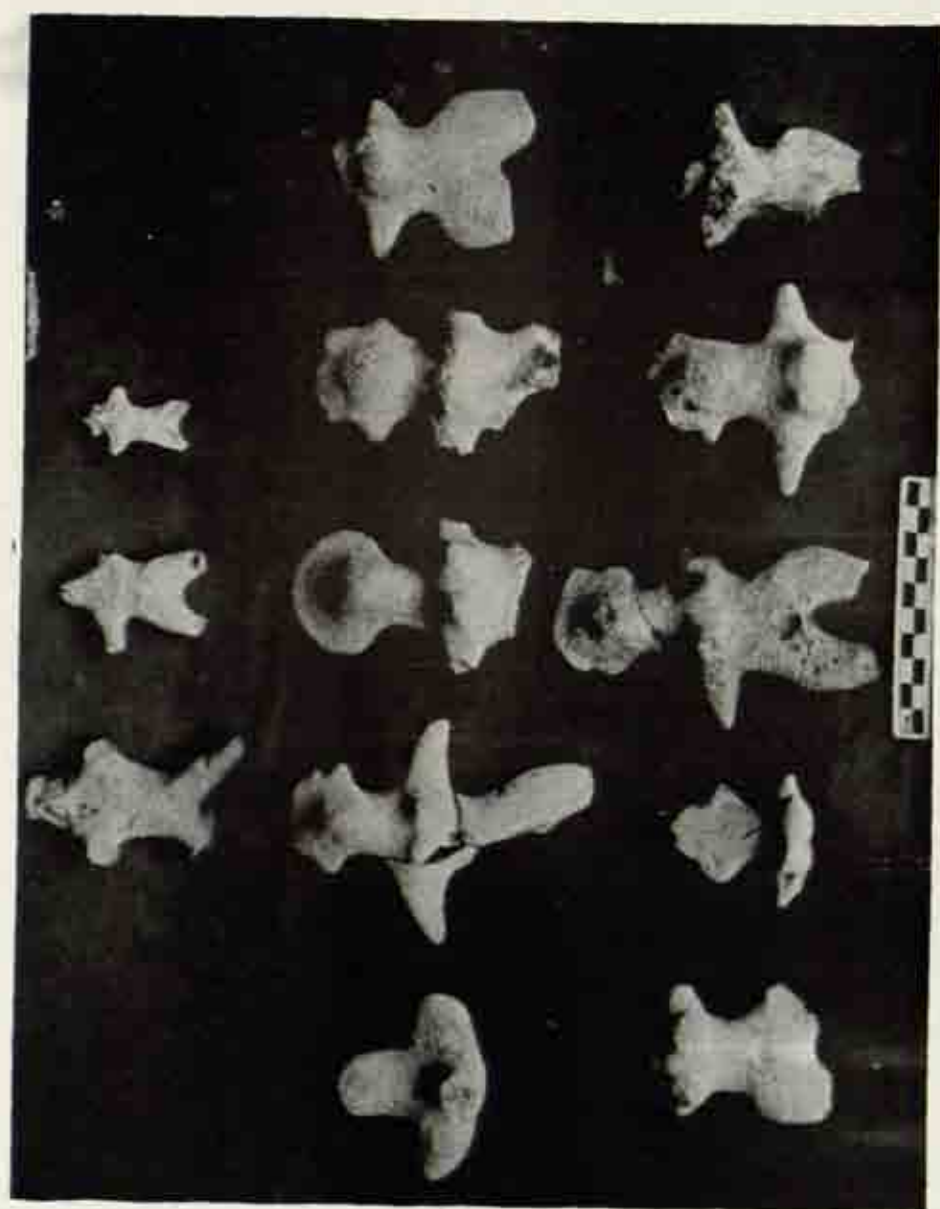
Figure of an Yaksha inside a lotus medallion from Dhulikatta Buddhist stupa.



Bharavahaka Yaksha represented as supporting the weight,
from Dhulikatta. Please note the ears, hands and legs
are elephantine.



Bas-relief representing the miracle of Sravasthi in which Lord Buddha is shown as a 'Pillar of Fire'. This may be the earliest form of Nandipada.



Archaic cult terracottas from Peddabankur.



Terracotta Mother Goddess with lifted hands and Makara type of head-dress from Peddabankur.



Mother Goddess from Peddabankur, carrying a bunch of fruit in the right hand. A parrot is nudging the breast of the goddess. This may be an archaic form of the Goddess Kumari.



Mother Goddess from Dhulikatta, holding her breasts with her hands from below.



A dome-shaped terracotta figure from Peddabankur. At the top of the dome is the head of an Yaksha inside a lotus design. This figure may represent the Sun God and probably the prototype of the one found on an ayaka slab of the Dhulikatta stupa.



97. The top portion of a spout of a jar, in the shape of a human figure, wearing a hat-like head-gear from Dhulikatta



98. Terracotta and ivory seals.

No. 1 Ivory seal from Dhulikatta (Plate No. 100)

No. 2 Terracotta seal from Peddabankur

No. 3 Positive impression of another

Terracotta seal from Peddabankur



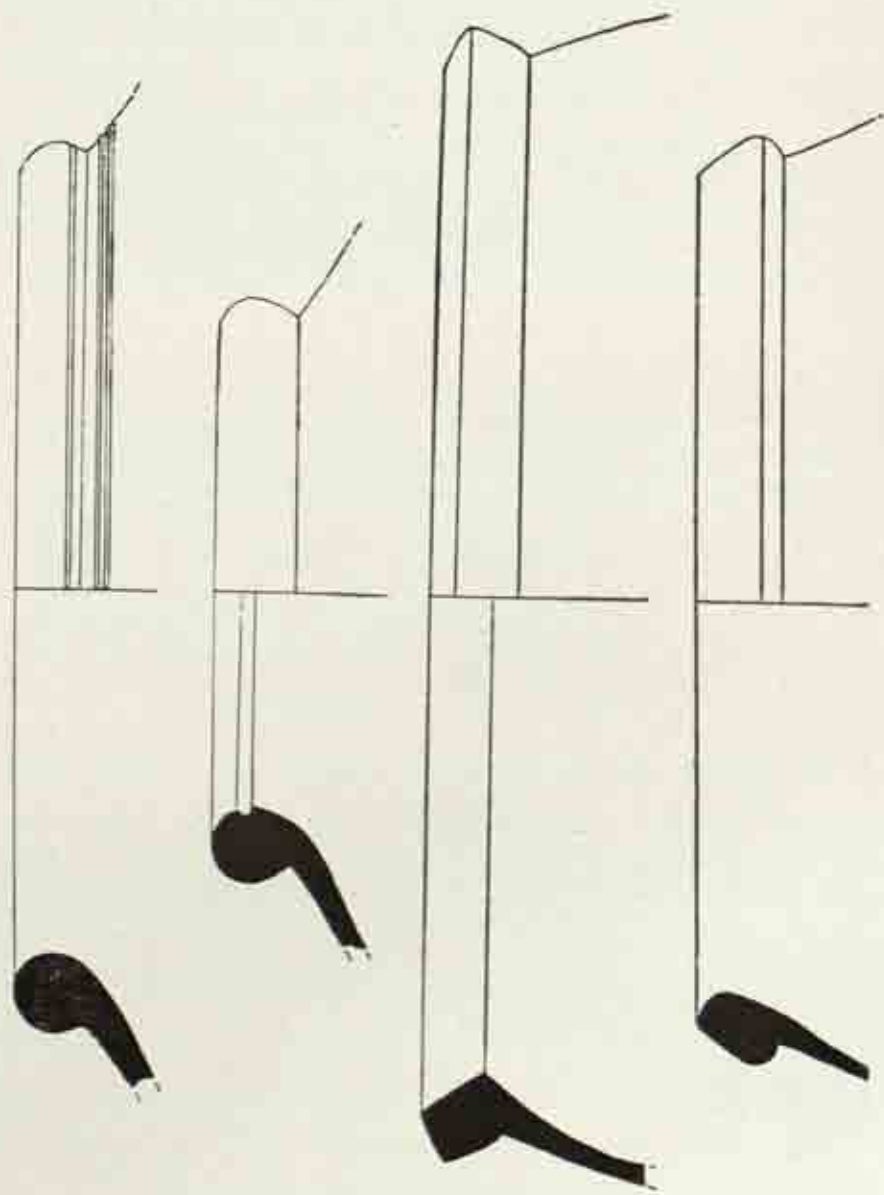
99. Inscribed Garnet seal (stone) with Brahmi letters as *ka ma sa* from Peddabankur



100. Ivory seal from Dhulikatta

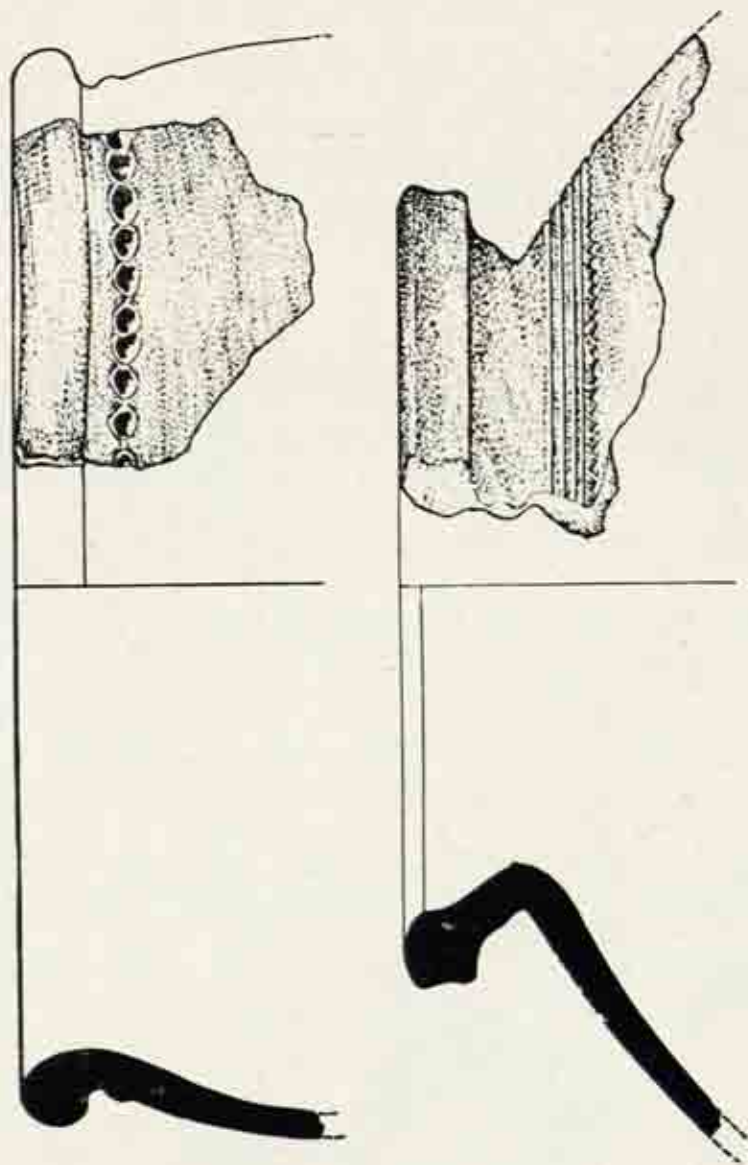
No. 1 Inscribed face of the ivory seal ; No. 2 Side view of the seal ;
No. 3 Positive impression of the same

Figure 15



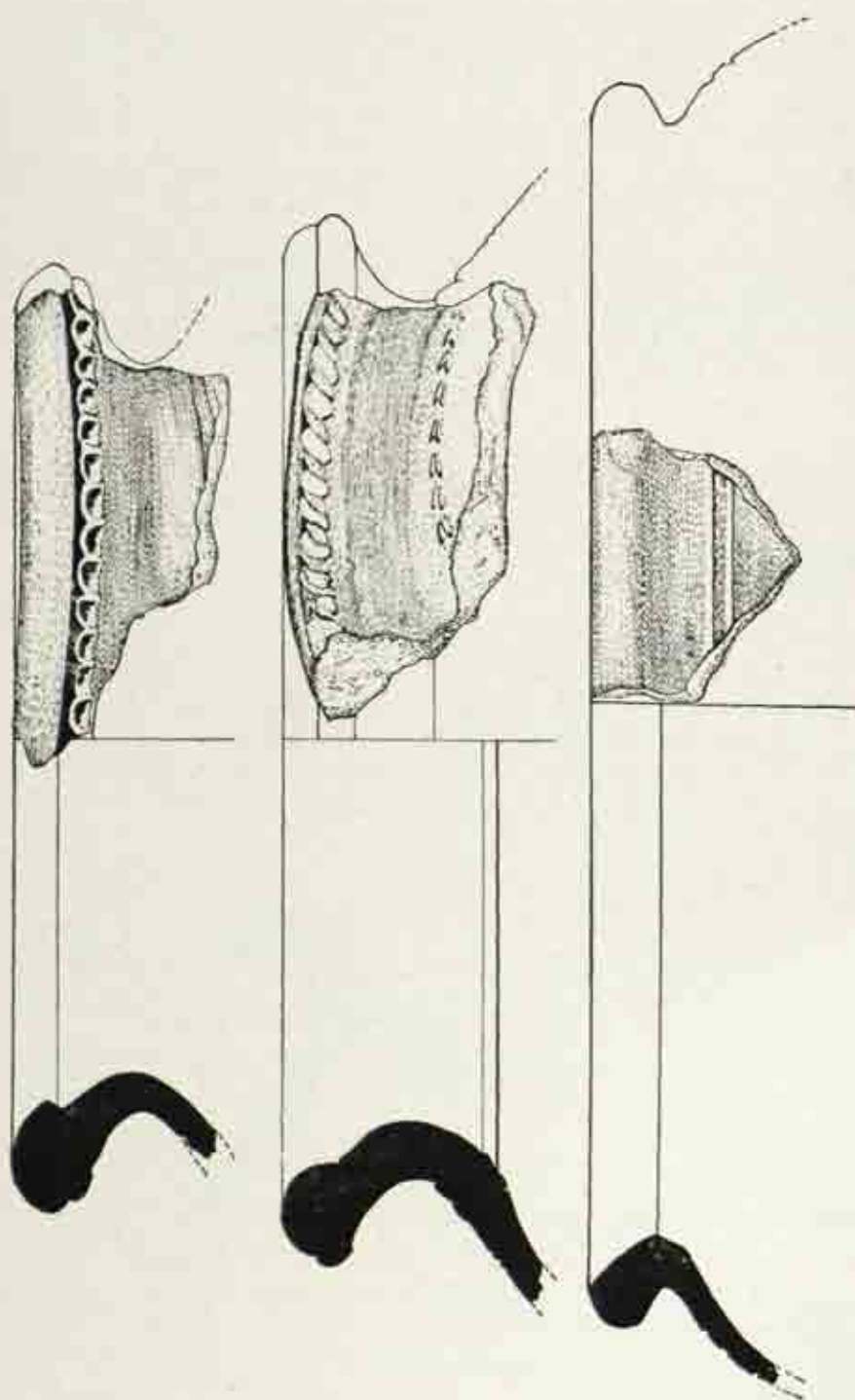
Storage-jars from Peddabankur (drawing)

Figure 16 (a)

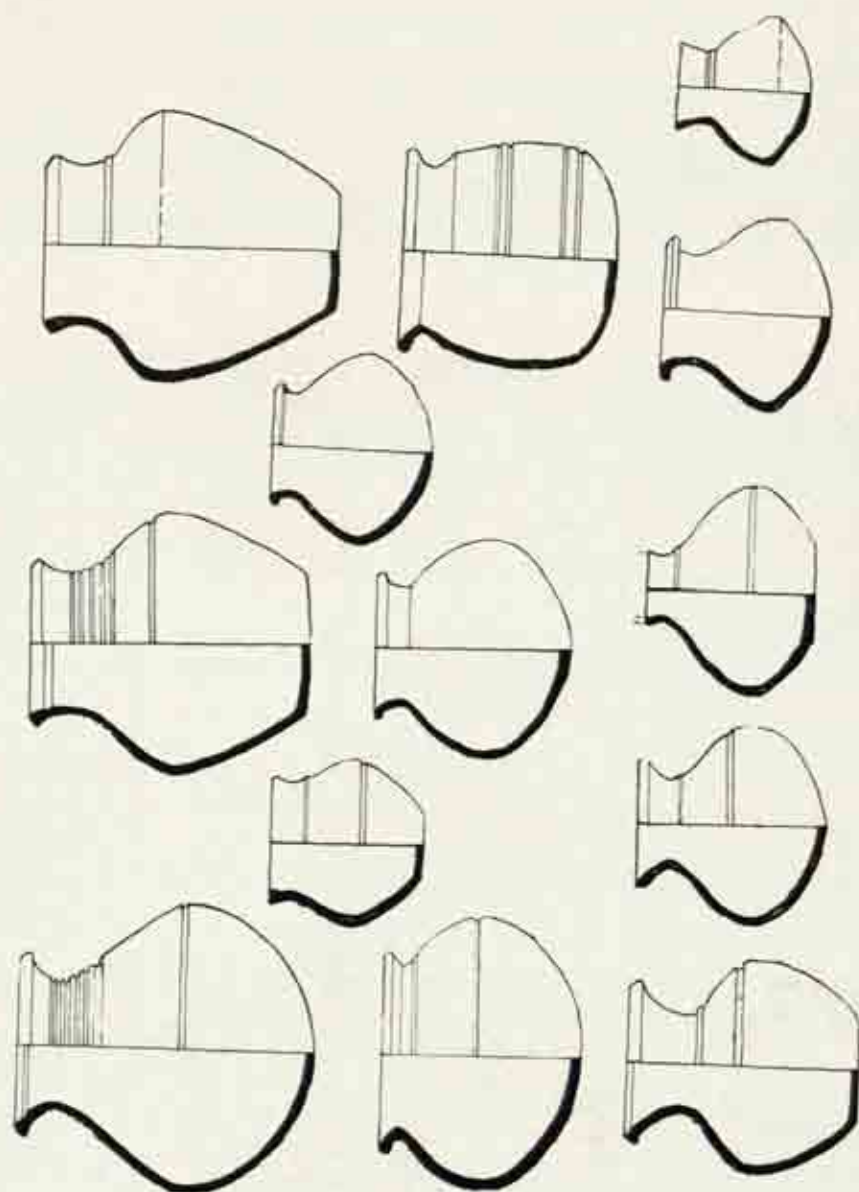


Storage Jars from Peddabankur (drawings).

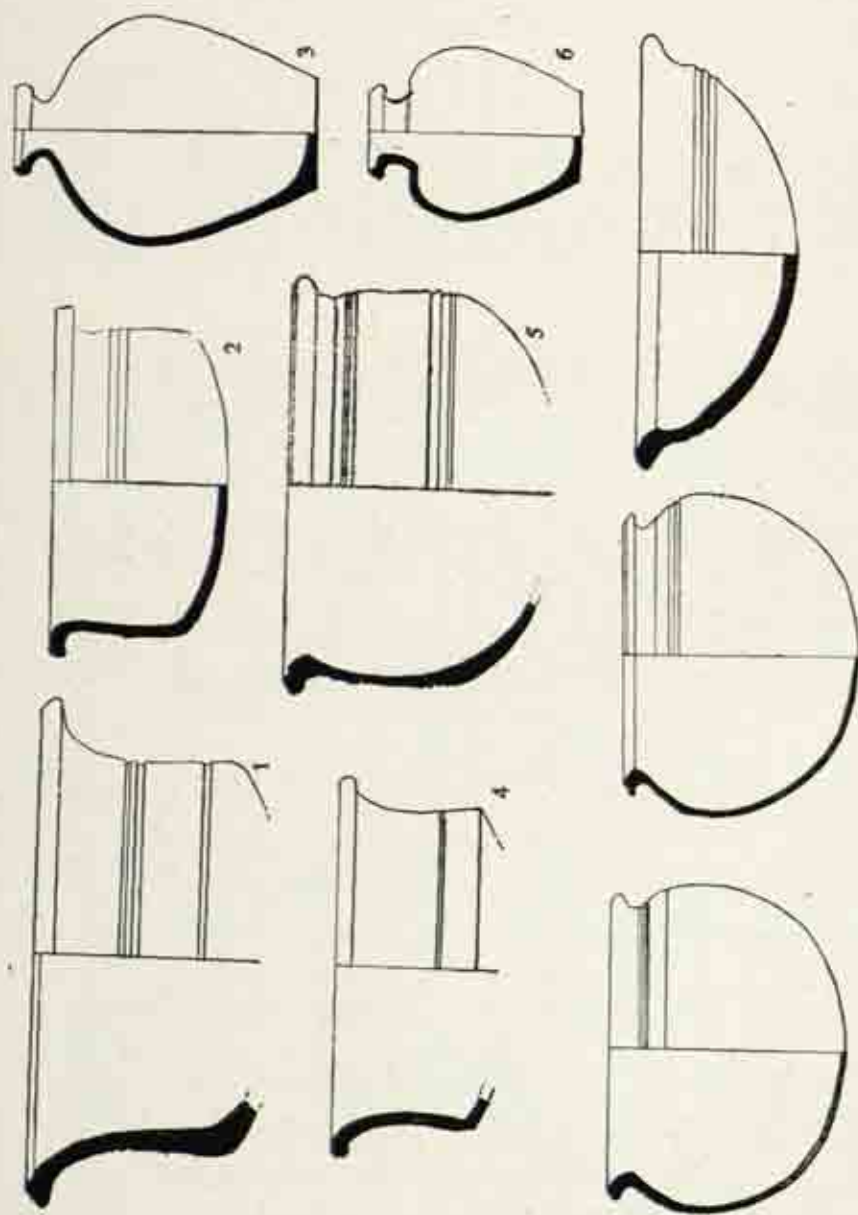
Figure 16 (b)



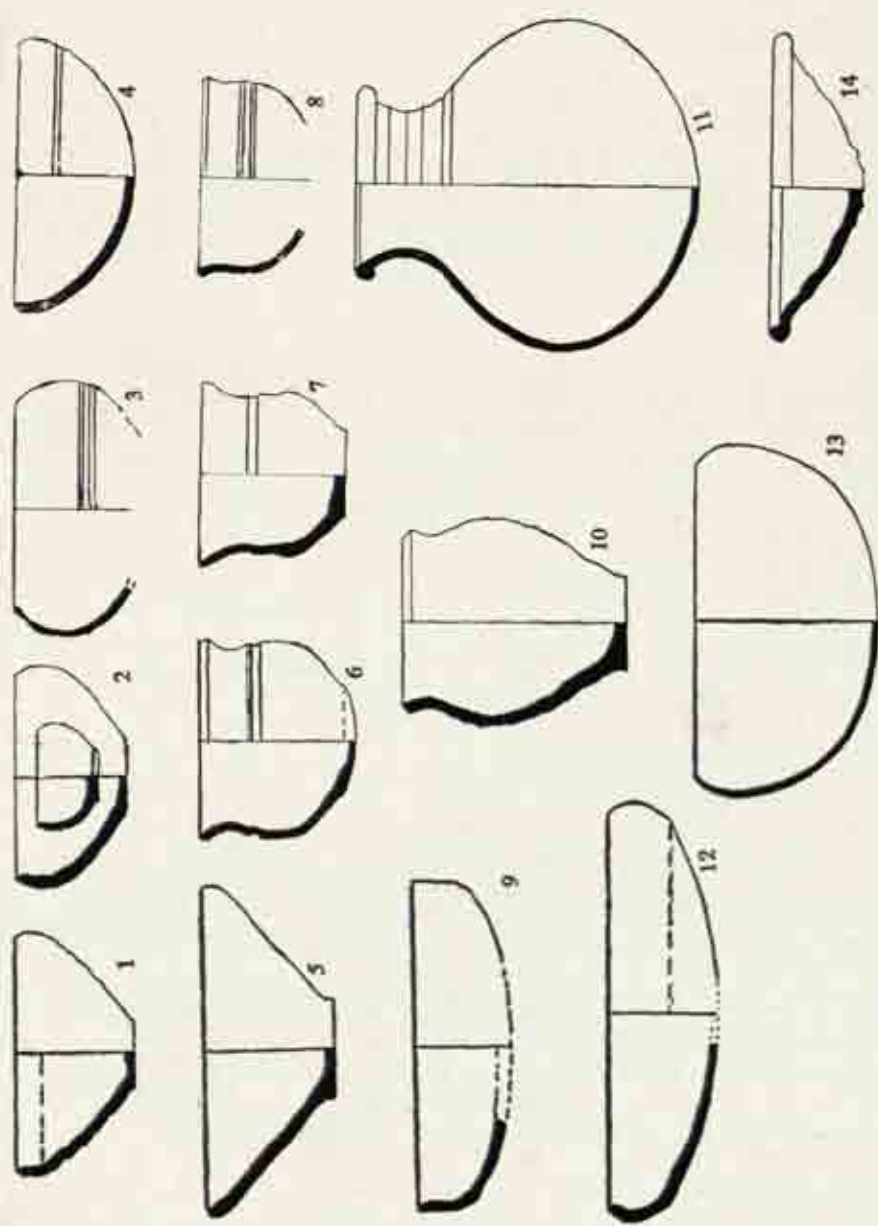
Smaller jars from Peddabankur (drawings).



Water pots from Peddabankur (drawings)

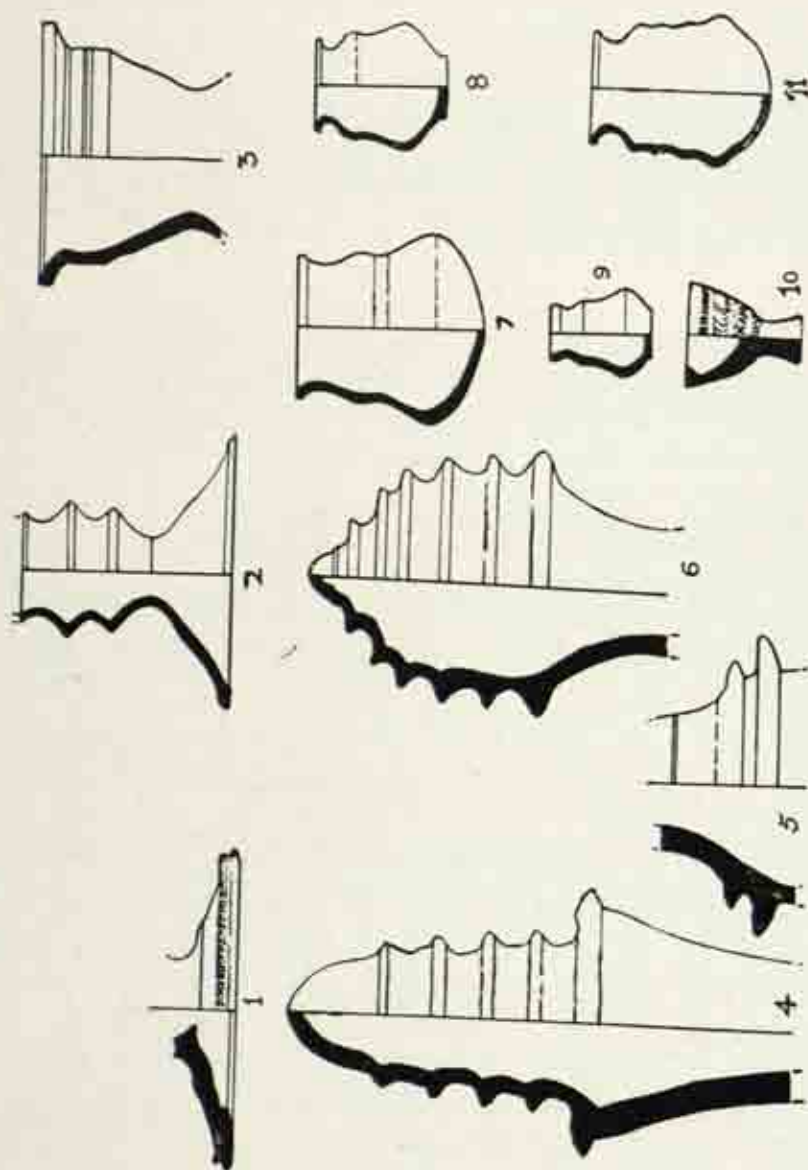


Top row : Nos. 1 & 2 Straight-sided carinated bowls; and No. 3 Pyriform wine vessel;
 Middle row : Nos. 4 & 5 Straight-sided carinated bowls; and No. 6 Pyriform wine vessel;
 Bottom row : No. 7 & 8 Globular bowls; and No. 9 Basin

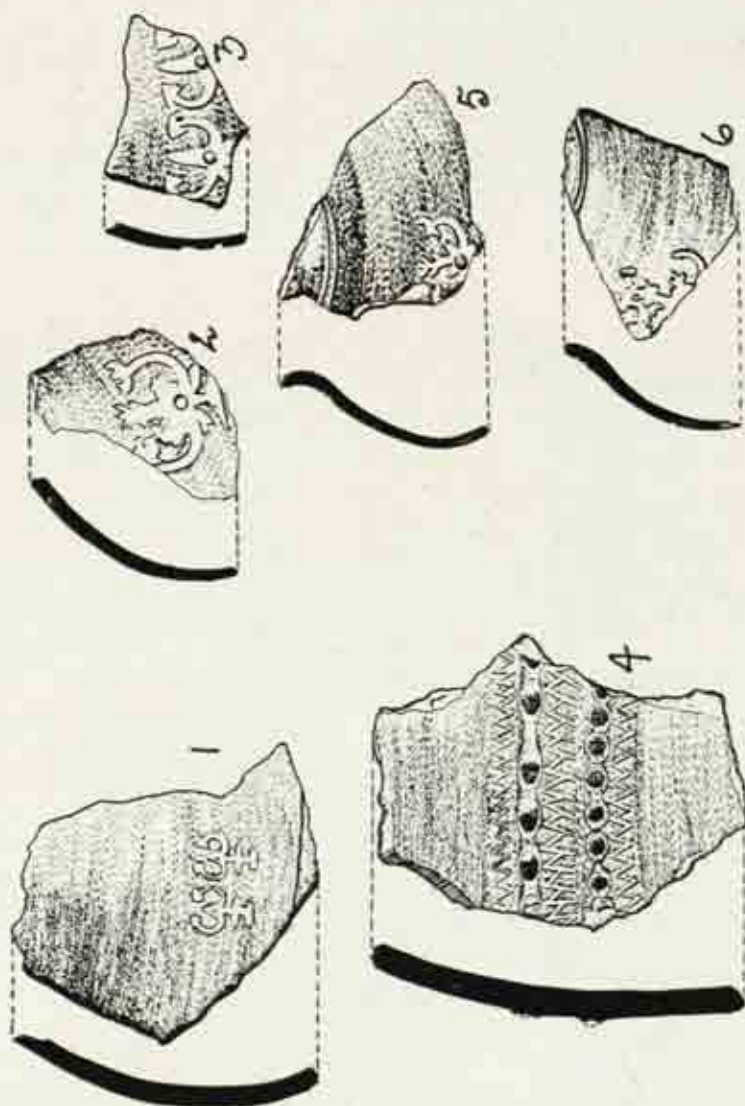


Nos. 1, 2 and 5 Conical Bowls; 3 & 4 Convex-sided bowls; 6, 7 & 8 Deep bowls; 9 & 10 dishes;
 No. 11 Lota; No. 12 Globular Vase; No. 13 Spherical Bowl; No. 14 basin.

Figure 20

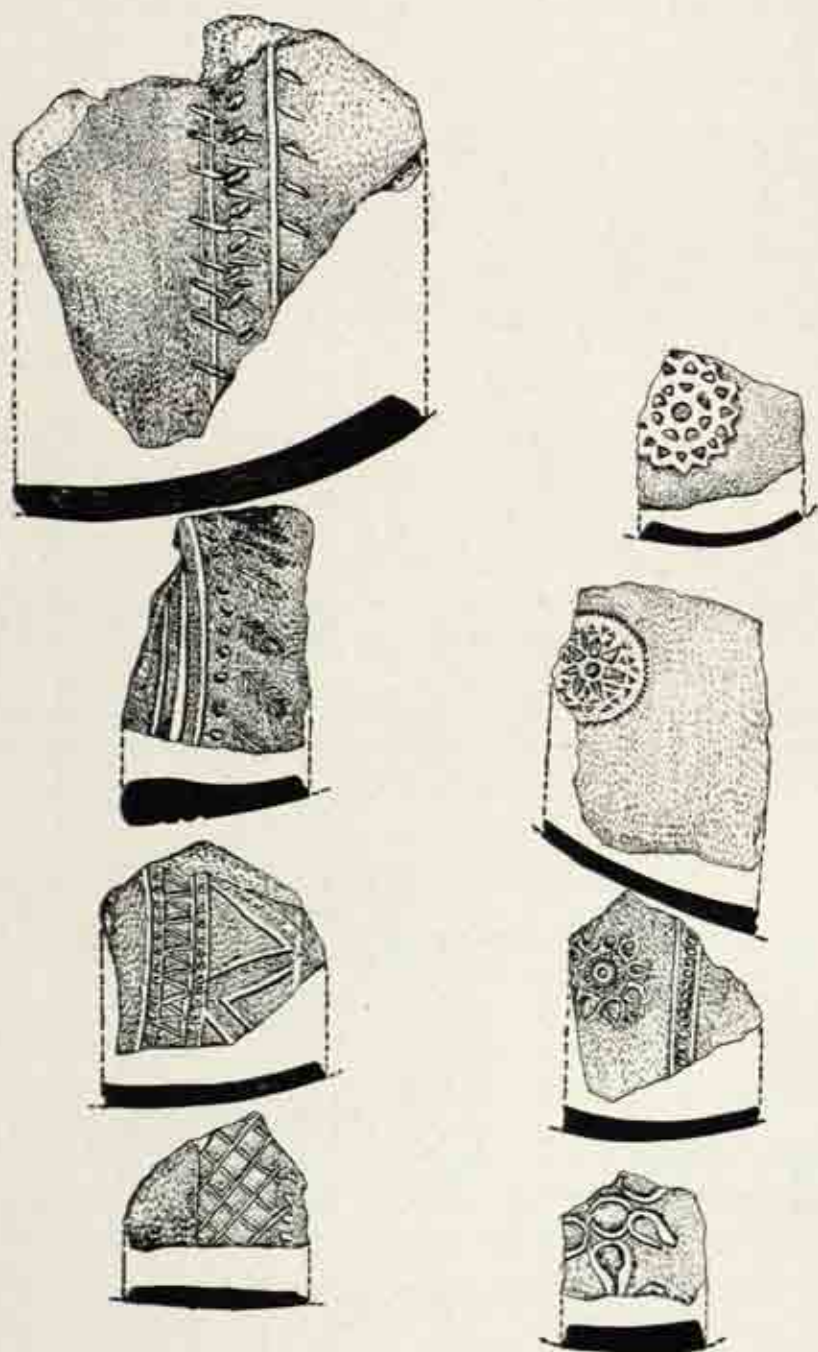


Lamp stands, vase, finails, lotas and censer from Peddabankur



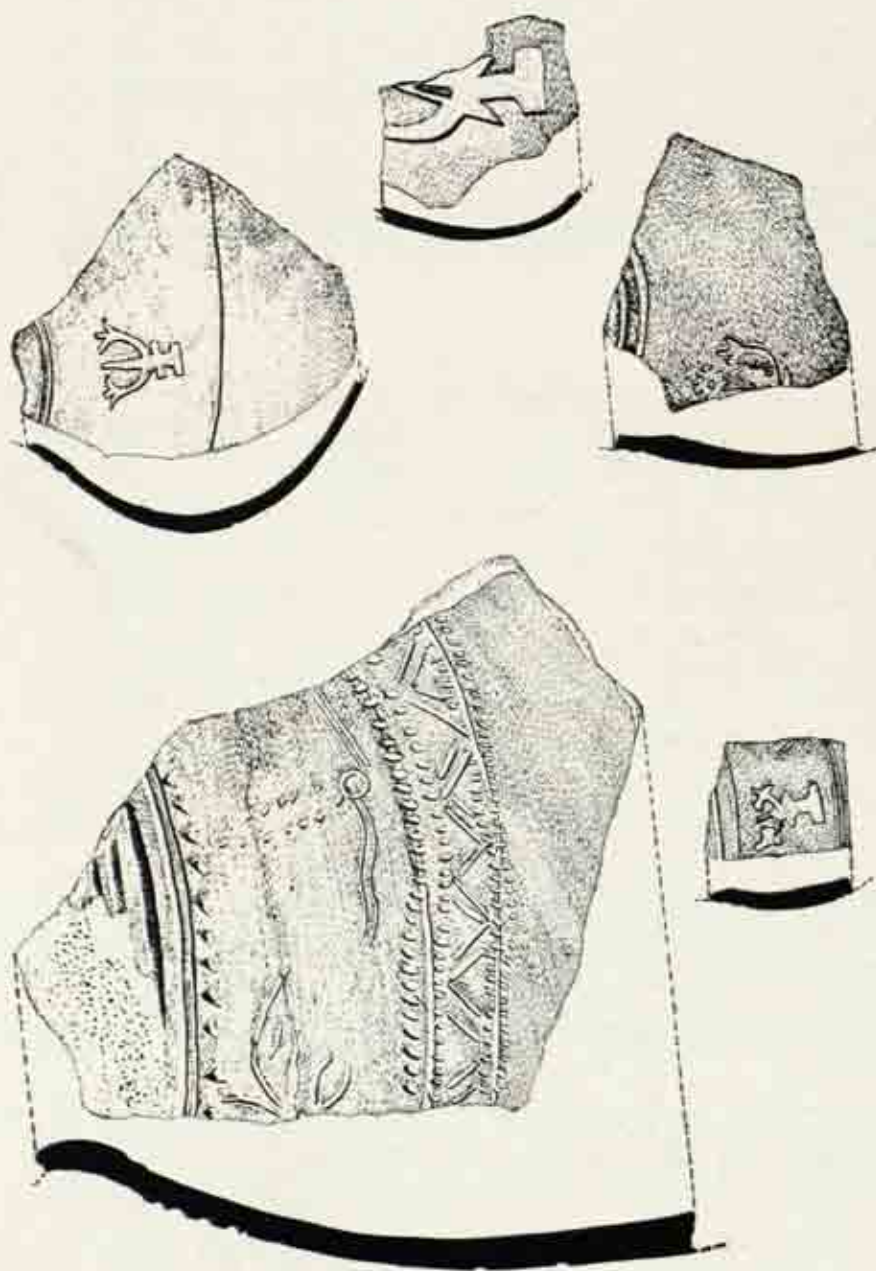
Decorated and Nandipada-stamped pottery

Figure 22 (a)



Decorated pottery from Peddabankur

Figure 22 (b)



Decorated pottery from Peddabankur

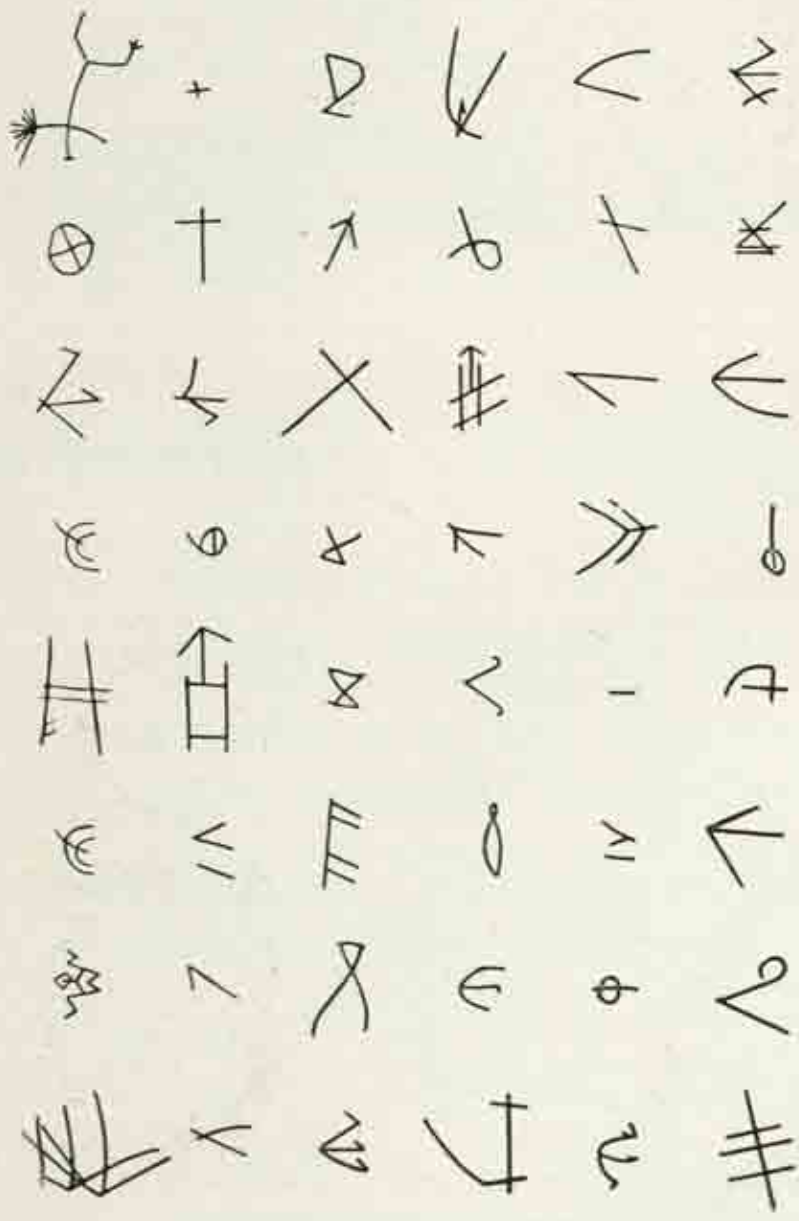
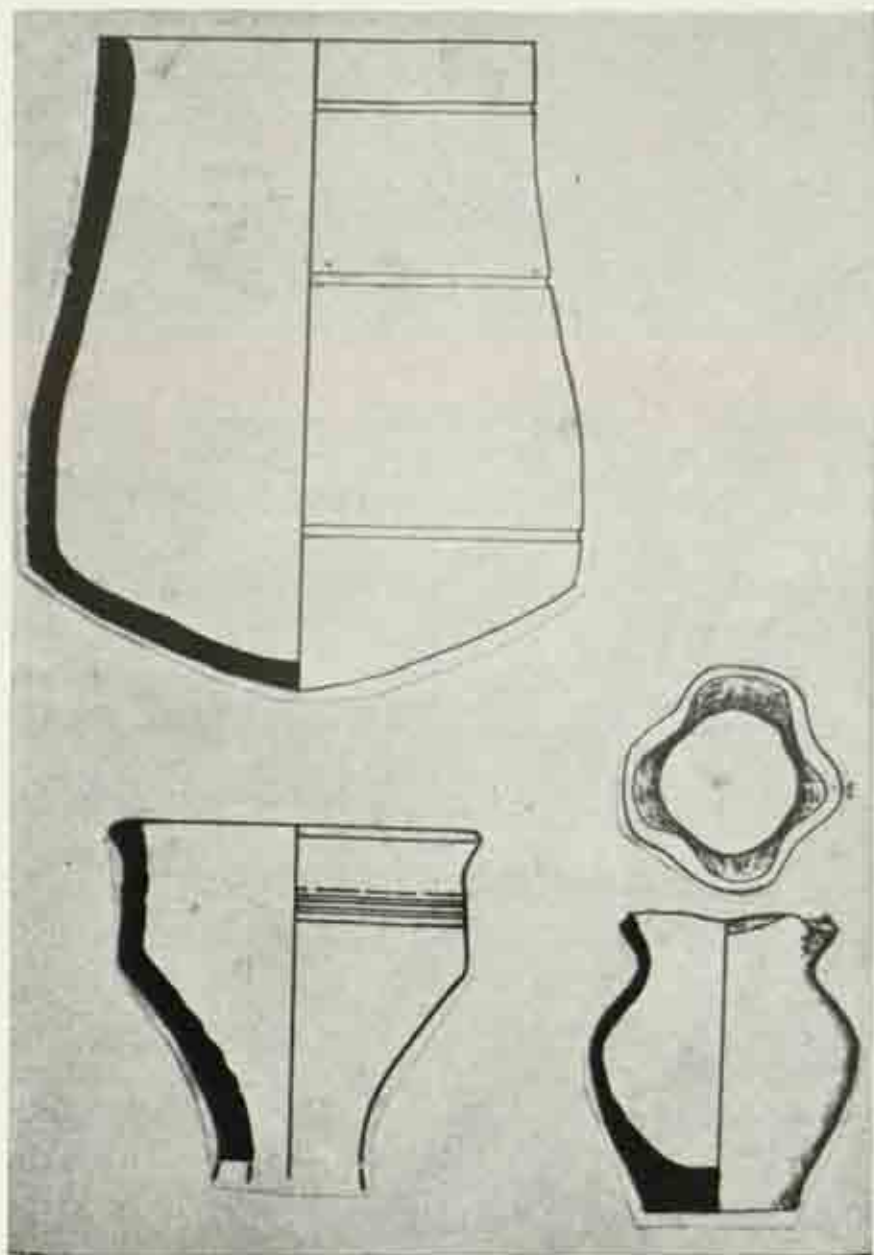


Fig. 23. Graffiti-marks over pottery found at Ped'abankur



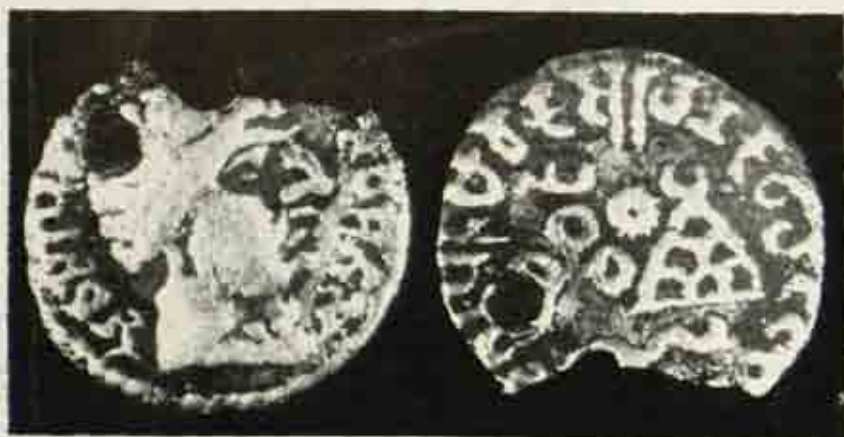
Globular and straight-sided measure a vase and a lota with a wavy mouth, from Dhulikatta and Peddabankur.



Roughly rectangular Punch-marked silver coins from Peddabankur. (obverse)



Circular Punch-marked silver coins from Piddabankur (obverse)



Silver Portrait coin (obverse and reverse) of Pulomavi from Dhulikatta



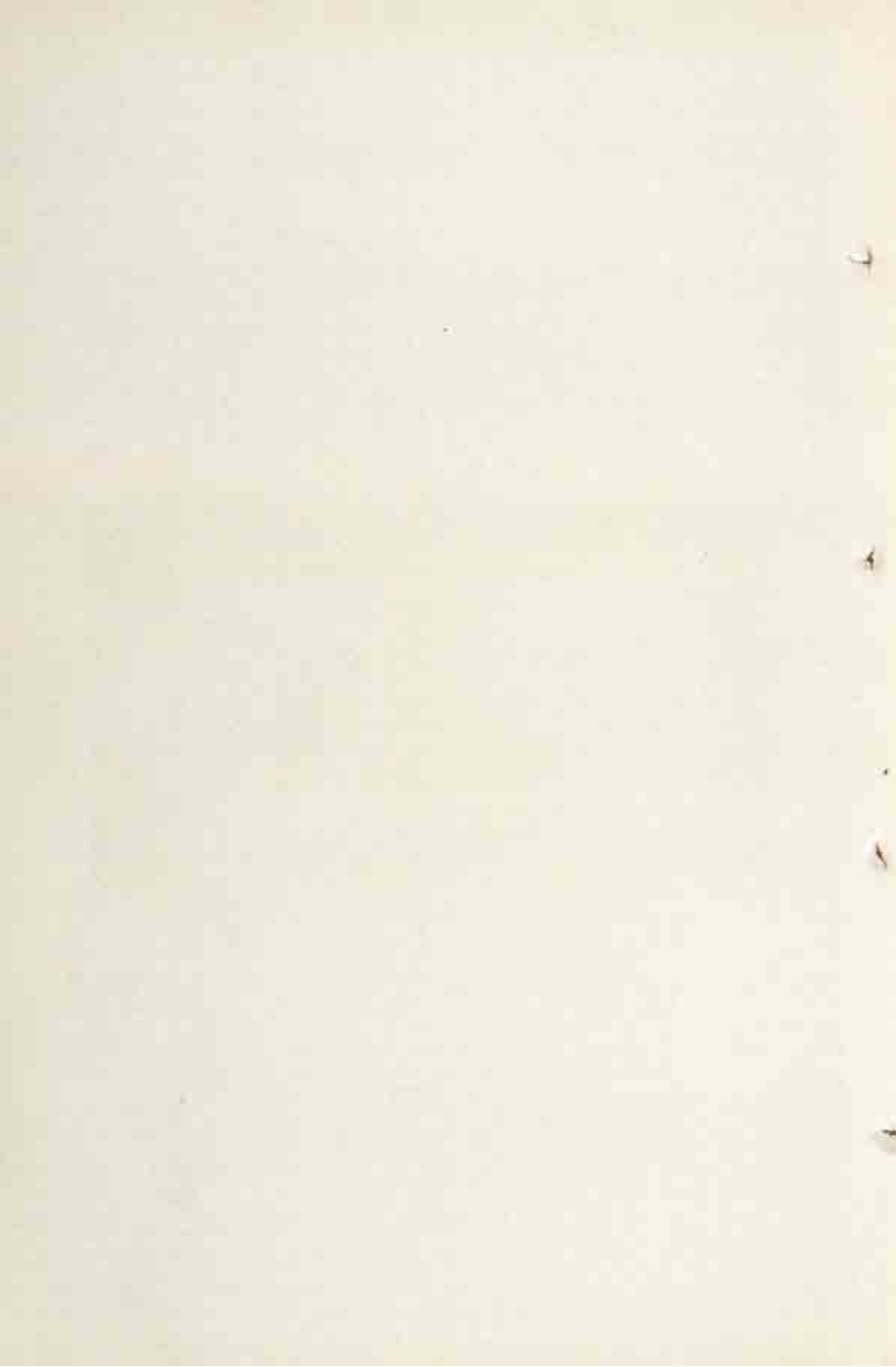
Roman coins from Peddabankur (obverse)



Roman coins from Peddabankur (obverse)



Terracotta seal showing Gajalakshmi from Peddabankur.



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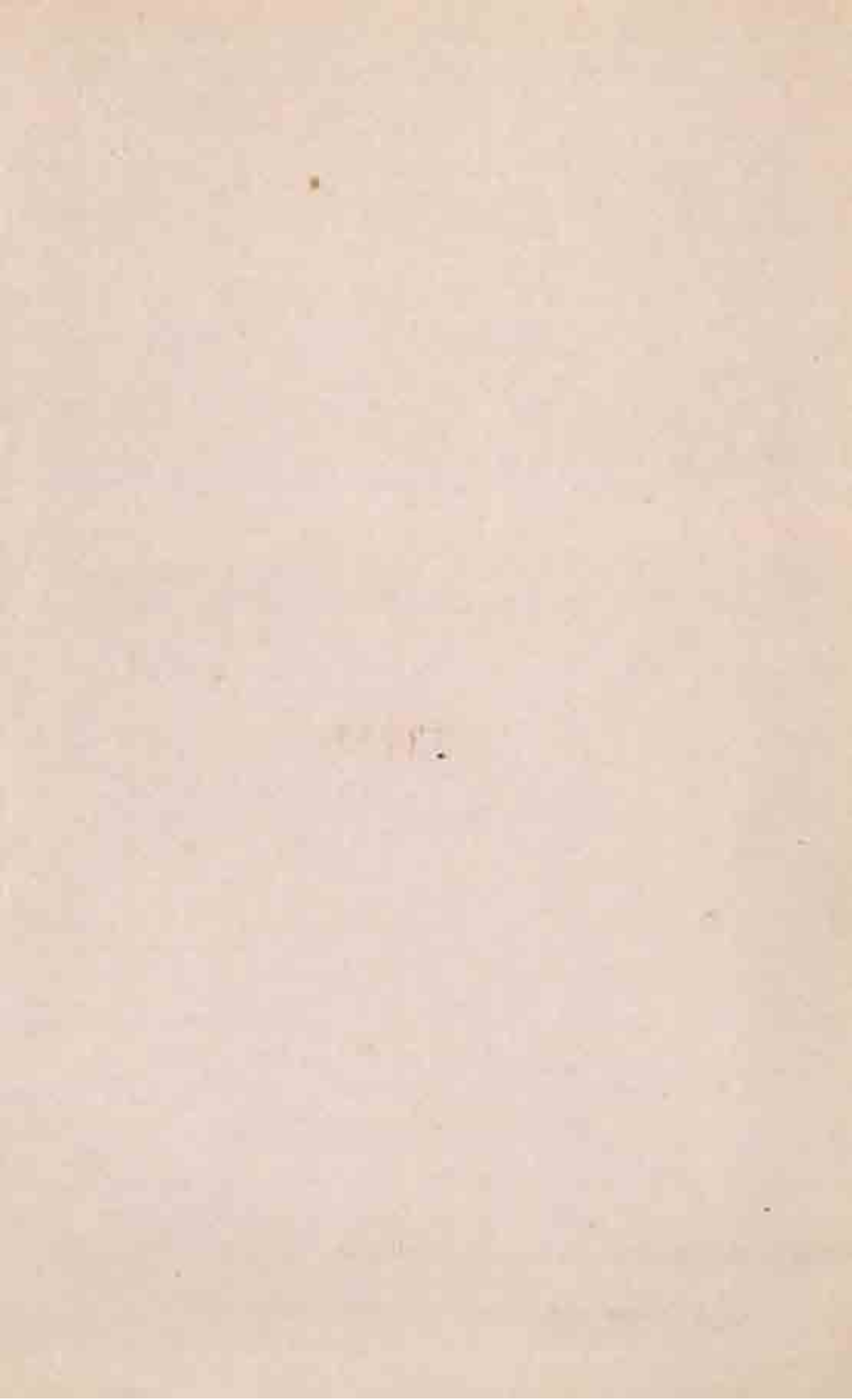
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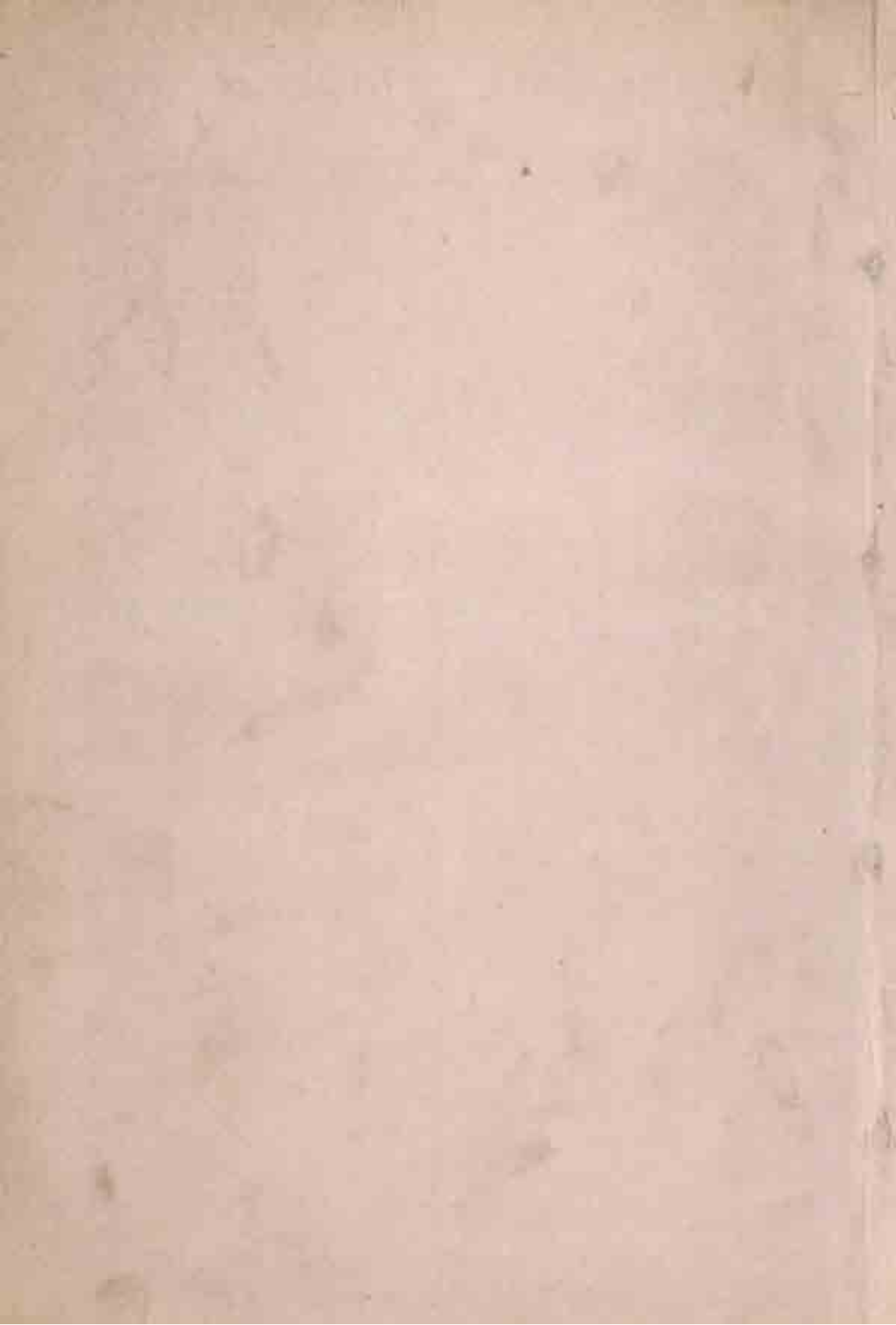
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